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BIRD GENEALOGY.[1]

BY CHARLES W. TOWNSEND, M. D.

ARCHÆOPTERYX had teeth in its jaws, separate hip bones, biconcave vertebræ, claws on its front limbs and a vertebrated tail, all marks of the reptile, in which group it might still be placed by some, were it not for the fact that the impression of the feathers has been preserved to us and stamps its essential bird nature. The links between birds and their reptilian predecessors are very perfect.

Now if birds are descended from reptiles, one may perhaps still find some traces of this lowly origin in the infantile period of bird life, just as there are various ear-marks of the savage of the jungle in the infancy of the most gilded city dweller, not to mention the transient and permanent reversions often found among adults of the race. Thus the Hoatzin of the Orinoco when young, has claws on the wings and scrambles about the branches in a truly reptilian style, a mode of progression that, according to Beebe, is still used by the adults.

One need not go so far as the Orinoco, however, to find evidences of the quadrupedal reptilian mode of progression in birds, as witness the actions of young Herons before they learn to fly, when with wings and legs they climb about their family tree almost as gracefully, I dare say, as did some of the ancient winged reptiles.

[1] Read before the Nuttall Ornithological Club, March 4, 1912.

The extension of the so-called thumb or bastard wing in the Pigeon and other birds as they approach their perch may in the same way hark back to the time when the reptilian ancestor grasped with its fore feet its goal on the tree tops. Both young Green and Night Herons elevate the bastard wing at times as they climb about the trees, but I have never seen them attempt to use it for grasping.

Left with a couple of young English Sparrows on my hands owing to the destruction of their nest caused by the closing of a blind, I dropped them into a basin of tepid water, expecting the inert masses to sink or at least that their wabbly heads would fall below the surface. On the contrary they became endowed with life and vigor as if upon their native heath, and, with a combination of rapid wing strokes and leg action, and with necks outstretched they scudded across the surface of the miniature pond.

Blood will out, the reptilian ancestry was working! To make sure that this was not an accident I dropped a young Red-winged Blackbird into the pool below his nest. He too performed in exactly the same manner and safely reached some reeds up which he scrambled, and was there well taken care of by his excited parents. It is probable that many a passerine bird nesting over the water has been saved from destruction by this return to primitive methods.

Further experimentation with young Crows and Bronzed Grackles showed me that very young birds generally moved the wings alternately, while older ones always flapped both together as in flight. From this one would infer that the primitive reptilian scramble was naturally an alternate method while the simultaneous method was simply the more advanced style used in flight.

In the case of the Chimney Swift the method of flight has been thought to be an alternate flapping of the wings. Let anyone watch these curious birds as they dart with amazing speed through the air, and I am sure he will agree that the wings are used alternately with great rapidity. Steady flight by this method is, I believe, mechanically possible. One might argue therefore that the Swifts retain the more primitive or reptilian method of moving the front limbs and are therefore members of a very early branch on the avian tree, although it is possible that through extreme specialization they have returned to this form of flight.

If this prone method of propulsion on the water on all fours is a

primitive one, as indeed it must be, then birds that swim in an erect Duck-like manner must have advanced beyond this stage and become specialized. I have several times seen young Spotted Sandpipers that were unable to fly, swim with ease like little Ducks, although when very young and much frightened they return to the primitive reptilian scramble on all fours. All of the members of the Shore Bird family swim naturally if they find themselves in water beyond their depths. Phalaropes habitually disport themselves on the surface of the water as gracefully as miniature Swans. It would seem to be a natural inference, therefore, that the ancestors of Shore Birds were swimmers and that the art of swimming is inherited and not developed by this group, and that the Phalarope is a case of reversion. The awkward action of a young seal at its first bath is an example of a case where the art of swimming has been recently acquired by a group and where it is not one of long inheritance.

In the classification of birds proposed by Hans Gadow the order *Charadriiformes*, or Plover-like birds, includes the Shore Birds, Gulls, Auks and Pigeons. The Shore Birds, we have just seen, show evidence of a swimming ancestry, although, with the exception of the Phalaropes, they habitually prefer the shore under their feet, even if it is wet and partly covered with water, to the deep sea. The presence of partial webs, as in the Willet and in the Semipalmated Plover and Sandpiper, point to the former existence of the swimming habit, for these birds like other Shore Birds do not swim except when unexpectedly forced to it.

If the partial web in the foot of the adult Shore Bird showed the beginning of the swimming habit in birds of land ancestry we should find the young birds like young seals very inexpert in the water. As the reverse of this is the case our conclusion that these birds are of water ancestry must be correct.

Gulls and Terns have fully webbed feet but their habits at the present day hardly justify them in this possession. Webbed feet are of great advantage to the rapidly swimming bird and to the diving bird that depends on its feet. Now Terns rarely rest on the water or swim and Gulls do not often swim rapidly, in fact they rarely swim at all, but drift about, while if either bird descends below the surface, it is as a result of the velocity of its plunge from

the air, and its feet are probably not used. In fact the web, although useful, is largely wasted on these birds, and it is evident that it is ancient and points to a swimming ancestry. That this ancestry is less remote than in the Shore Birds is perhaps shown by the fact that a wing-tipped Gull, falling on the beach will take to the water, and swim vigorously out to sea, while a similarly crippled Shore Bird falling into the water will swim to the beach and endeavor to run inland to hide.

Before they are able to fly, young Skimmers are said to seek safety by running into the water, another evidence of their water ancestry. Chapman in his "Camps and Cruises of an Ornithologist," speaking of young Common Terns a few days old, says: "several were seen to enter an inflowing creek, drink repeatedly of the salt water and swim actively, in evident enjoyment of their natatorial powers, while the parents, who rarely alight on the water, watched them from the shore. Possibly here was an explanation of the value to Terns of webbed toes. Functionless in the adult they are of service to the young, before the power of flight is acquired." In this supposition he is probably right, although this service to the young is not the reason for the existence of the webs, but the observation points very clearly to the swimming ancestry of the birds. We could not have stronger proof of it.

That the Auks are out and out water birds there needs no defence, but one is at first sight puzzled by the presence of the Pigeons in this group. The older systematists placed the Pigeons with the Partridge and Domestic Fowl tribe, but Pigeons may be seen wading in puddles in a manner that would alarm the Barnyard Cock. I have been told by a Pigeon fancier that young Pigeons are much attracted by water, and fond of bathing therein, and that young birds are liable to drown themselves in tanks or troughs if these are accessible to Pigeon lofts. I recently placed a half-grown Domestic Pigeon in a wash-tub of tepid water. With head and neck erect, the bird swam rapidly with alternate strokes of the feet to the side of the tub. The wings were arched up and waved slightly, — not stretched out and flapped in the water as in the case of young Passerine birds. Its position was like that of a Duck but low in the water. Progress was much more rapid than on land where the bird stumbled awkwardly along. Indeed it had

never before left the nest. I repeated the experiment several times with the same result. A fact of considerable interest in this connection is that "A Pigeon with a perfectly webbed foot [was] evolved at Cambridge by only three years' selected crossings." [1] This may be looked upon as a case of reversion. The throwing of somersaults in the air similar to those of the Tumbler Pigeon has been reported in the case of the Black-bellied Plover.

The Sheathbill, *Chionis*, is so ancestral and generalized in its type that it suggests all the groups we have just been considering. Anatomically it is allied to the Oyster-catchers and the Gulls. It is often classed among the Plovers, but it is as marine in its haunts as are the Auks, and in flight it resembles the Gulls. Its appearance on land, gait and manner of courting are very much like those of a Pigeon, and it goes by the name of 'Kelp Pigeon.'

While young Terns take to the water, young Cormorants when pursued take to the shore. This would suggest a terrestrial ancestry of these birds, and according to Gadow, Cormorants strikingly resemble the New World Vultures, and the habit of both these birds of sitting with their wings spread is suggestive of kinship. The fact that Cormorants on rising into the air hop with the feet together, although their usual gait is a waddle, suggests a former arboreal life, and many Cormorants still nest in trees.

Tree dwellers naturally hop from branch to branch, and it is probable that the earliest birds were arboreal. When the tree-dwelling bird descends to the ground it naturally hops there also, but hopping is not a satisfactory method of progression for a ground-feeder,—it does not permit of cautious approach, and it is decidedly jarring. A walking gait, therefore, may be understood to indicate a long custom of feeding or dwelling on the ground. Although the Flicker is frequently seen on the ground, the ground habit is probably but recently acquired, for it has not learned to walk, while the Robin for example is able to run, and does so much more often than it hops. Young Robins show, however, their arboreal ancestry by hopping more than they run. Pipits, Horned Larks and Ipswich Sparrows have so completely departed from arboreal habits, that they run easily and walk with grace. Walking

[1] T. Digby Pigoit, "London Birds and other Sketches". London, 1902, p. 239.

appears to be acquired later than running. It is a very interesting fact that the Savannah Sparrow, frequenter of meadows and marshy pastures, generally hops even when on smooth ground, although it is also a good runner, while its near relation the Ipswich Sparrow, frequenter of sandy wastes, almost never hops and is a good walker.

Herons as far as I know, although constantly in the water very rarely swim, but that they come of a swimming ancestry seems probable from the behavior of a young Green Heron not old enough to fly that I put in the water. It sat erect on the surface and swam off with a grace and ease that contrasted forcibly with its awkward movements on land. Not only was its poise graceful and Swan-like, but the speed with which it swam, the practiced manner in which it feathered its ungainly toes, the ease with which it threaded its way among the grass stalks, and dabbed every now and then at the water with its bill, all pointed to an inherited instinct, an instinct, however, that is largely if not entirely lost in adult life. This young Heron had never practiced the art of swimming before — it had probably never left the nesting tree, which was on a marsh island some distance from even the highest tides. Adult Herons like some Shore Birds show their swimming ancestry by a distinct web between the middle and outer toes.

The use of the wings under water in some diving birds and the significance of this fact I have already discussed in another place.[1]

One is apt to think of evolution as a thing of the past, an accomplished fact, and to forget that at the present period of time this great law is still as existent as it has been since the world began. With change in environment, there comes through natural selection acting on slight variations and occasional mutations a change in the structure to fit the new environment, and in time a new species is developed. As new species arose in the past, so they must be in various stages of formation at the present time. The great group of American Warblers are for the most part slender-billed, insect-eating birds, that go south with the approach of cold weather. One of them, however, is enabled to spend the winter on the bleak New England coast by a change from an insectiv-

[1] Auk, XXVI, 1909, pp. 234 to 248.

orous to a seed-eating habit. The Myrtle Warbler thrives through the cold winters chiefly on a diet of bayberries, while all the other members of this family seek more genial climes, where they may continue to live on insects. Not only this, but a large number of its own species go south, and winter in the Greater Antilles, Mexico and Panama, where insect food is of course abundant. The New England birds eat not only bayberries, but also the seeds of grass and weeds that extend above the snow, and they glean the bark of trees like Titmice.

Now birds like men are clannish; in fact there is a remarkable similarity between animal and human nature,— which is not so surprising when one considers our origin and relationships. Among savages slight differences due to different environment, set apart one group or race from another. Each race considers itself *the* people, and despises, fights and refuses to mix with the other. The Eskimo and the Indian, although both manifestly of Eastern origin, so dislike each other that intermarriage, except under the influence of civilization, is rare. This tendency makes of course for differentiation; without this tendency the constant mixture of races would make the production of new species more difficult. While this clannishness is most marked among savages, it is also so pronounced in civilized races that each nation classes all foreigners, especially those that speak a different tongue, as their inferiors with whom intermarriage is not to be thought of. The more ignorant the individuals, that is to say the more primitive or animal-like, the more intense is this clannishness, and, its boundaries may be limited, not by the nation or state, but even by the village in which the individuals live. Mr. Punch's collier who proposed ' 'eaving 'alf a brick' at the stranger in town is an instance in point.

The element of home also enters into this exclusiveness which favors the formation of races, and hence of new species. This factor is strongly shown in the human species unless the individual has become cosmopolitan by travel and education; and the inhabitants of what appears to an outsider to be a most desolate region regard their home as superior to any other country on the globe, and pine if taken away from it.

Now the seed-eating Myrtle Warbler that spends its winters in the cold and stormy north is undoubtedly as clannish as the

Eskimo, and considers itself superior to the south-seeking Myrtle Warbler, and it would probably pine for its northern home if transplanted by force with the rest of the species to tropical regions. In addition, its clannishness probably impels it to chose a summer home apart from its southern relations.

At present man cannot distinguish the northern from the southern Myrtle Warbler, just as in the remote past, it is probable that the Eskimo could not be distinguished from the Indian. In time, however, aided by this inherent clannishness and love of home, one might predict that a larger race of northern Myrtle Warblers would be formed with thicker, stronger bills and more muscular gizzards. Indeed I have endeavored to investigate these three points in order to discover whether a beginning had been made in the evolution of this new species, but I have not as yet examined enough material to throw any light on the subject.

One can easily see how important the element of clannishness is, for without it interbreeding might for a long time, if not indefinitely delay the birth of a new species. The importance of clannishness in the evolution of races and species, has I believe never been given due weight.

As among men so among birds there are striking differences in ambition and ability to succeed. Some men, some families, some nations are progressive,— they are always reaching out for new opportunities and taking advantage of them. Others are retiring, unambitious and contented to remain where they are. One of the most remarkably progressive birds is the Horned Lark which has spread to nearly every part of the continent, and has made each part so much its home that it has adapted itself to the environment to the extent of changing its own form and plumage. There are now recognized fourteen different North American races or subspecies of the Horned Lark. The pushing character of the bird is shown in the recent extension of the breeding range of the Prairie Horned Lark from the central part of the continent to New England. In 1889 it was first recorded as breeding in Vermont, and the same year in central Massachusetts. In 1903 it reached the sea and bred at Ipswich and has come there to raise its young ever since, meanwhile increasing in numbers throughout the New England states.[1]

[1] Auk. XXI. 1904. p. 81.

The Song Sparrow has adapted itself in twenty different forms to all parts of the continent, and is abundant almost everywhere. Incidentally it is interesting to compare a map of North America showing the various lingual races of Indians with one showing the various races of Song Sparrows. Both maps show an extensive race in the more uniform east — the Algonquin Indians, and the *melodia* sparrow,— while both show in the diversified surface of the extreme West numerous races of both man and bird.

What a contrast is the enterprise shown by the Song Sparrow to the lack of enterprise in the case of such a bird as the Swamp Sparrow, for instance. Although first cousin to the Song Sparrow and although it is spread over a large territory, the Swamp Sparrow limits itself to the almost uniform environment of swamps, and has therefore never developed any races.

Another bird which is showing great developmental or evolutionary possibilities is the Grackle both Purple and Bronzed. This bird instead of shunning man has been bright enough to appreciate the fact that it is safest from persecution when in most intimate relations with him. It has come into his towns and cities, and it does not hesitate to build its nests on his houses. In Boston, although there had been a few previous records, it was not until 1900 that the Bronzed Grackle began to breed regularly in the Public Garden, and the numbers increased so that thirty-two nests were counted there by Mr. H. W. Wright in 1906. In 1907 they first began to build nests in the vines on my Ipswich house, and two pair have nested there every summer since, when I permitted. In the matter of food they are not particular, or rather their appetite is a catholic one, and they can adapt themselves to circumstances. They are able to pick eggs out of a Robin's nest and peas from pods in the garden, and they undoubtedly serve a useful purpose in towns and cities by diminishing the English Sparrow nuisance. I have seen one hold down a struggling English Sparrow with its foot while it deliberately pecked out its brains. While the English Sparrows follow Robins hunting worms on the lawn, and saucily snatch the worm away from their very mouths, they keep at a safe distance from the Grackle, and if he so much as stops to look at them, they fly off in terror. In fact Grackles put to flight the innocent Robins. I have seen a Grackle partly run

and partly hop with wings extended toward a Robin that was digging worms near by, making the Robin desert the spot on which the Grackle then dug.

But the most interesting development of the Grackle, one that shows its great adaptability and intelligence, is a habit it has of picking up food from the water, after the manner of the Herring Gull. A Grackle will hover close to the water its head to the wind, and then suddenly drop, and with its bill pick up from the surface some morsel as gracefully as a Gull. This they do at times without wetting their plumage; at other times the bill, feet and tail are immersed, while I once saw a Grackle splash his whole body into the water and entirely immerse his head, to emerge without difficulty, carrying in his bill what appeared to be a small silvery fish. I have seen them after sailing and hovering over the water in a high wind with the spray dashing about them, skilfully pick up food from the tops of the waves.

It is easy to picture an island community of Grackles becoming more and more addicted to a maritime life, owing perhaps to the shrinking of their terrestrial food supply due to a change of climate or to land subsidence. Would not these habits become in time as much inherited as are similar habits in the Gulls? Or, to put the question in another way, were not the inherited traits of the Gulls originally acquired?

The Ipswich Sparrow is the only strictly dune dweller among the birds. Its summer home is on Sable Island, an island of sand dunes off Nova Scotia, and it spends its winters along the sandy portions of the Atlantic coast. It is evidently a near relation of the Savannah Sparrow, which is somewhat smaller and darker, and lives chiefly in marshes and open fields from Labrador to New Jersey. As the glaciers receded we can picture the gradual pushing north of the Savannah Sparrows, and their extension to the great sandy wastes that fringed the coast for miles. As the land sank and the waters rose restricting these regions of sand, the struggle for life among the clan that preferred the sand dunes must have been an intense one, and it is probable that the larger and stronger birds, as well as those that more nearly matched in color their surroundings were the more likely to survive. Isolation from the main land finally aided in the work, and at last a distinctly new species

was evolved, a bird larger than the Savannah Sparrow of the main land, and of a gray or sandy, rather than a black and brown color, so that when it squatted in terror on the sand the sailing Hawk was more apt to pass it by.

It seems to me, therefore, that the evolution of the Ipswich Sparrow is comparatively recent, and that the age of this species may be counted by the paltry fifty thousand years or so that have elapsed since the last glacial period.

A RECONSIDERATION OF THE AMERICAN BLACK DUCKS WITH SPECIAL REFERENCE TO CERTAIN VARIATIONS.

BY JOHN C. PHILLIPS.

THERE are several species of primitive ducks which for many reasons are of peculiar interest, on account of their remarkable geographical distribution and mutual interrelationship. This group of species is composed of *Anas fulvigula, Anas tristis, Anas diazi, Anas wyvilliana* and *Anas laysanensis.* Most of these are poorly represented in collections and this fact has led to certain misconceptions. It is the purpose of the following notes to point out some of these mistakes, and to say a few words about individual and sexual variation.

To begin with I wish to call attention to the principal difficulty in the proper understanding of these local races; this is the presence of a sexual difference in plumage, increasing probably with age, and comparable, with that of the Hawaiian duck (*Anas wyvilliana*). In this way all these related species can be separated from *A. tristis* in which the sexes are similar. At first I thought that this sex difference was confined to *A. diazi* and I started to limit these notes to the latter species, but as more specimens turned up I thought it better to consider all the American Black Ducks.

In the autumn of 1910 Mr. W. W. Brown, Jr., collected some birds for me in the lake region near Mexico City. In the collection was a large series of *Anas diazi*, heretofore very rare in museums. There were six males and seventeen females, taken near Lerma in the early Fall.

Upon examining this series I was struck at once with the very marked sexual difference shown in the skins, a difference which does not appear to have been properly noticed. The species was first described (Ridgway, Auk, 1886, p. 332) from an immature female and then later by F. Ferrari-Perez (Pr. U. S. Nat. Mus., 1886, p. 127) from an adult male, as well as an immature female. In the latter paper the female was said to be very similar to the male except that the streaks of the lower parts were narrower. The sexual color differences of bills and legs were not noted.

It is at once apparent that this bird is widely different from the other American Black Ducks.

Sexual dimorphism. The most noteworthy sexual differences are as follows. The male is somewhat larger than the female, more especially in the wing measurement. The upper mandible of the male is colored a dull olive or yellow-olive, while that of the female is dusky along the center and brilliant orange on the sides. Conversely the feet and legs of the male are bright orange and those of the female a dull orange color. The under parts of the males are barred with irregular blackish V-shaped markings, while the females are all more or less finely streaked with a lighter dusky shade. This difference of appearance is due to a different feather pattern, particularly on the front and sides of the breast. (See plate.) The typical female feather has a dark central wedge at the tip, while the male feather is edged with brown and patterned with a V-shaped sub-terminal black area.

Individual variation. Both the anterior and posterior ends of the speculum are framed by a black band inside, and a light band outside. The posterior white band, formed by the tips of the outer secondaries is fairly uniform, but the anterior white band is very variable. In some cases it is narrower and mixed with buff or dusky; and in three cases it is absent altogether and replaced by a very faint dusky line. These last are all females. We see thus a tendency to vary in the same direction as will be pointed out

further on for *A. wyvilliana* and along the lines of what appears to be a distinctly Mallard character. In one specimen, Mus. Comp. Zoöl., No. 54135, the fifth secondary from the outside shows no metallic color. Its inner web is normal, while its outer is brown, dusky at the shaft, and light buff on the edge.

Taken as a whole this series appears very uniform in color and does not present the variety of appearances which is seen in *A. tristis*. In the latter the tips of the secondaries very often show a narrow white band, and occasionally a specimen is found that shows a white or whitish band at each end of the speculum, thus approaching the Mallard type.

The speculum color of *A. diazi* varies, as it does also in *A. platyrhynchos* and in *A. tristis*, from a metallic violaceous green to a violaceous purple. This difference has apparently nothing to do with age or sex and is not a character of specific importance, except within wide bounds. It seems to have been used too frequently in describing specific differences.

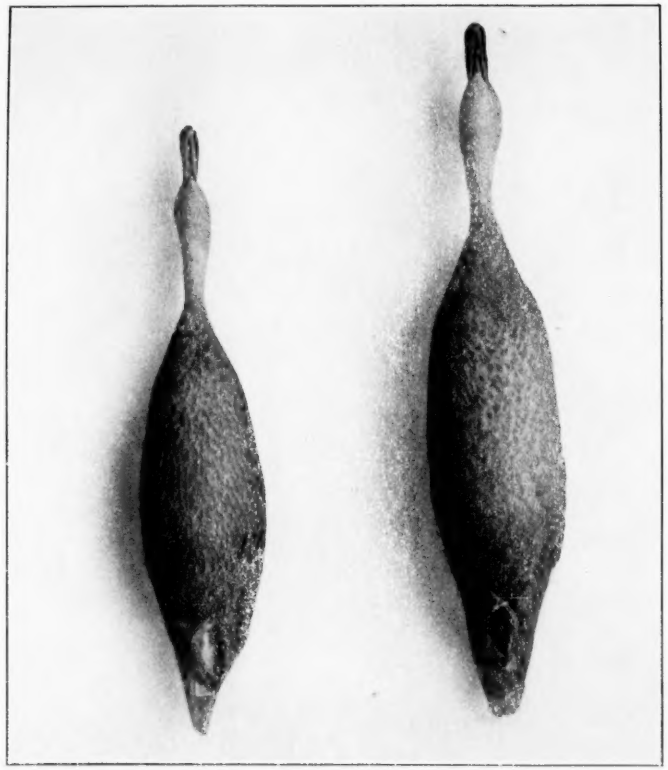
ANAS FULVIGULA — FLORIDA DUCK AND A. F. MACULOSA — MOTTLED OR TEXAN DUCK.

As originally described by Sennett (Auk, 1889, p. 263) the Texan form was separated from the true Florida Duck on the basis of several indefinite characters, which I should like to consider briefly. It is certainly a fact of peculiar interest if two races of Ducks could be found within such an area as the southeastern states where except for a very few exceptional cases the avifauna is so uniform.

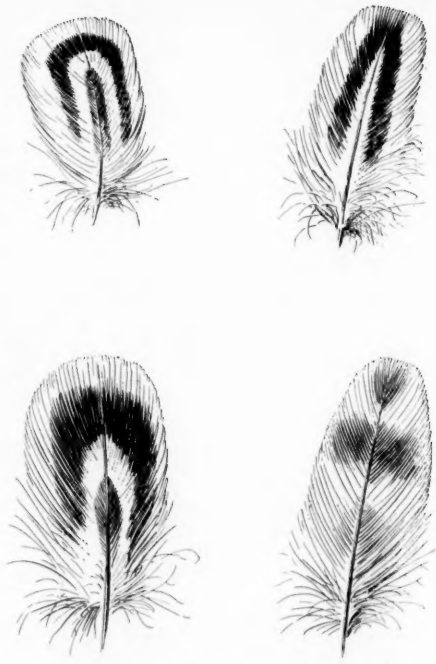
In the British Museum Catalogue, Vol. XXVII, p. 203, Salvadori says, "In my opinion *A. maculosa* is scarcely different from *A. fulvigula*.

I have at hand a fine series of *A. maculosa*. There are 3 from the Museum of Comparative Zoölogy, 5 from the collection of Mr. John E. Thayer and 4 from the collection of Mr. Wm. Brewster. These have been carefully compared with a series of 7 Florida Ducks in the Museum of Comparative Zoölogy and 13 from Mr. Brewster's collection. I do not hesitate to say that as far as I can see there is no racial difference between these 12 specimens from

Texas and the 20 from Florida. There is also one Florida Duck in down in the Brewster series. In the original description of *A. fulvigula* (Ridgway, Pr. U. S. Nat. Mus., Vol. I, p. 251) nothing is said about sex dimorphism, yet this is apparent though perhaps not quite so uniform or so well marked as in *A. diazi*. Mr. Brewster's specimens are especially fine, being mostly birds in fresh plumage. There is a general tendency to a more mottled appearance in the males and a more streaked appearance in the females; the difference being particularly marked over the breast, where the males average very much darker. The different appearance of the under parts is due to a feather pattern similar in general to that found in *A. diazi* and *A. wyvilliana*. The typical male breast feather has a V-shaped black pattern tipped with brown, in unworn specimens, while the female has a more irregular black pattern extending to the tip as a median wedge-shaped area. The sexual difference is probably accentuated with age, and there is no trouble in picking out the adults of either sex at a glance. There is good evidence both here and in *A. diazi* that the immature feathers are of the female type, the typical male pattern first appearing on the upper chest, and later extending to the abdomen. Except in one case the dry bills of the Brewster series are all dull orange in the female and dark olive in the male. This one exception is a black bill in an undoubted female specimen. There is no tendency in any of the males to sex feathers in the tail. The speculum varies from a brilliant green to a brilliant purple. There is no trace of an anterior white speculum band, but a posterior white one often occurs. The chin color varies from cream white to pale rufous and no specimen shows a rufus chin. The male birds are somewhat darker throughout than are the females. The young in down (one specimen), has a distinctly pale appearance compared with the young of *A. tristis*. It is brownish in appearance rather than dusky. Bearing these facts in mind and turning now to *A. fulvigula maculosa* we find this Texan and Mexican race separated from the Florida race by Sennett with the following characters. Color of the cheeks more brown than in *A. fulvigula* (streaked with brown according to Sennett, but I cannot see what is meant by this). It is probable that the Texan birds were thought to have more richly colored chins. The speculum is said to be purple instead



ANAS DIAZI.
Female on left. Male on right.



BREAST FEATHERS, ENLARGED.
ANAS WYVILLIANA (above).
ANAS DIAZI (below).
Male on left. Female on right.

of green, while the general color of the under parts is mottled instead of streaked. The light color of the margins of the tail feathers is said to be different, as are the lighter parts of the plumage in general.

As to the color of the cheeks there is no difference in the markings themselves, or in the ground color. It is true that in specimen No. 4562, M. C. Z., from Brownsville the ground color of the chin is rather darker than any Florida specimens which I have seen. The bird as a whole is very dark, having the appearance of being stained during life. As to the speculum color it varies so much, as was shown above that I cannot consider it very seriously. In Mr. Brewster's specimens from Texas the color was purplish green, and in the other specimens there was quite a range of shading from purplish green to a nearly pure purple. The direction of the light, must of course be taken into consideration in judging speculum colors. As to the general color of the under parts it would seem that an adult male Texan bird was being compared by Sennett with a female or immature male from Florida. The general color of the feather margins does not show any difference in the two regions. As to size, over 70 separate measurements have been carefully taken and averaged, and they show absolutely no difference. They do show this, however, that the Florida and Texas birds differ slightly from *A. diazi*. The culmen in *A. diazi* is shorter, while the tarsus and wing are slightly longer. A somewhat careful consideration, then, has given no proof of two races of *A. fulvigula*.

ANAS TRISTIS — BLACK DUCK.

It is not the purpose of this paper to discuss the question of two forms of this species.[1] Neither material nor experimental proof is at hand. It is, however, very interesting to look at a mixed series of *A. tristis* and compare it in a general way with *A. diazi* or *A. fulvigula*. In the former species there is a diversity in general shade and markings, especially on the lower parts, which is very curious in such stable birds as the Anatidæ. It suggests that we are dealing with a 'mixed population', the term being used here

[1] *A. rubripes* and *A. rubripes tristis*.

in a genetic sense. There is certainly evidence of two forms, but unfortunately some of the characters form a graded scale, and are well defined only in male birds, perhaps only in old males.

There are however, other interesting variations in *A. tristis*, such as the irregular occurrence of characters that are essentially Mallard. I mean here variations that occur outside of the rather common hybrids with the Mallard. Such variations occur in a large number of full plumaged male birds. I paid some attention to these variations a few years ago and was surprised to find in perhaps 20 to 30 per cent. of male birds taken in late fall in Massachusetts, some of the following abnormalities. One or more brilliant metallic green feathers on the pileum; a general metallic cast to the feathers of the upper parts, especially the rump; the upbending of the central tail feathers, sometimes to quite a marked extent; and the very much darker appearance of the chest in contrast to the abdomen, so that a demarcation line was more or less apparent, corresponding to the lower edge of the chestnut in the Mallard. Also, as was before noted the posterior end of the speculum may be banded with white, and occasionally both ends are framed by a narrow white band. These characters may appear singly or several of them in combination.

If they signified a slight infusion of Mallard blood we should certainly expect to find some sort of corresponding variation in the Mallard. Such, however, is not the case. Aside from well marked hybrids, the Mallard presents no evidence of contamination. We must, therefore, regard these variations as slight Mallard tendencies which are being carried along by the species, for the most part in a latent or inhibited condition.

In examining some pure wild male Black Ducks which I have had in captivity for three years I was much struck with the large amount of green which had appeared in the postocular stripe and along the sides of the pileum. Their rumps were brilliant bronze with iridescent green reflection. There has certainly been a change in these birds in three years, but I have no exact notes. I have never seen so much green in any wild killed Black Ducks as one of these captive ducks shows.

The occurrence of such variation makes the problem of a possible bi-racial composition of *A. tristis* even more difficult. I hope to

be able soon to obtain experimental proof either for or against the presence of latent Mallard characters in *A. tristis*.

ANAS WYVILLIANA — HAWAIIAN DUCK.

This duck is considered here because of its undoubted relationship to the American Black Ducks, and on account of its curious variations, which have already received comments from several writers. I hope to show that, as in the case of the Florida Duck, a certain amount of misconception has arisen because of a failure to understand the sex plumages. There are other matters, however, that cannot be disposed of so easily and which must be taken up in some detail. The U. S. National Museum has kindly loaned seven specimens of this very rare duck, and the three others studied belong to the Museum of Comparative Zoölogy. The species is now either extinct, or bordering closely upon it.

The Hawaiian duck is very interesting also, because it shows direct Mallard affinities, and is the only other species except the Laysan Teal (*Anas laysanensis*) that normally carries the Mallard sex feathers in the tail. Its individual variation is all the more curious when found in a group as stable as the Anatidæ, especially when confined to an insular habitat.

Anas wyvilliana was first described, with a short diagnosis, by Sclater in 1878 (P. Z. S. 1878, p. 250) but there was nothing to show to which sex the specimens belonged, except the mark of the collector, who recorded them as males. In the Voyage of the Challenger (Birds, Plate XXII) Sclater figures one of these males, which is apparently in juvenile plumage or perhaps in summer moult.

In 1888, Stejneger (Pr. U. S. Nat. Mus., Vol. II, p. 98) calls attention to the defects in the original description and in the plate, and then deals at some length with the various differences found among the five specimens than at hand in the U. S. Nat. Museum. Other remarks were made about this species by T. Salvadori (in the British Museum Catalogue, Vol. XXVII, p. 196, 1895) who also considered this bird more or less of an ornithological puzzle.

Rothschild in the 'Avifauna of Laysan,' 1900, p. 271, gives two plates of *A. wyvilliana* and discusses his large series of specimens.

First let us glance briefly at the ten specimens before us and in a general way give the main points of sexual difference. Of the six males, four are correctly sexed, one is unsexed, and one has been sexed both as a male and a female and then had both marks crossed out. There is, however, no question about the sex of either of these two. All six males present the characteristic V-shaped markings on the breast (see plate) thickly streaked throat and cheeks, nearly black pileum, sometimes mixed with iridescent green towards the neck; and except in one case evidence of sex feathers in the tail. In this one case (Nat. Mus. No. 113448) the middle tail feathers are lacking, probably moulted out as the date is May. The sex feathers appear to be typically three in number, but they may be four. They are not so well developed as in the Mallard.

Of the four females all are correctly sexed. They all have the streaked under parts characteristic of *A. diazi* (see plate), immaculate throats and absence of sex feathers.

The table of measurements below shows the size difference in the two sexes. This is small and about comparable with that seen in *A. diazi*.

Males.

	No. 113447 U. S. Nat. Mus.	113449 do.	131717 do.	113448 do.	21319 do.	15025 M. C. Z.	Av.
Culmen	44	44	45	48	44	46	45
Wing	230	218	223	228	218	212	221
Tarsus	37	39	39	40	39	38	39

Females.

	A. aberti Type 12788 U. S. Nat. Mus.	113450 do.	131718 do.	48384 M. C. Z.	48383 M. C. Z.	Av.
Culmen	42	44	41	44	45	43
Wing	212	210	206	215	219	212
Tarsus	35	38	38	38	41	38

We must now turn to Dr. Stejneger's account of the species. He first describes the two males, U. S. N. M., No. 113447 and No. 113449, and shows several points of difference between them, especially in the color of the bill, in the anterior white wing band and in the under wing-coverts and under tail-coverts.

No. 113448 was taken to be a female (absence of sex feathers noted above) although the specimen is without doubt a male, as evidenced by the characteristic breast pattern, large size, and dark chin. The smaller upper wing-coverts are broadly margined with cinnamon in this specimen, a character also seen especially well in No. 131718 and in the type of *A. aberti*. This certainly looks, as Stejneger himself suggests, like a youthful type of plumage for the males of more advanced plumage show the small wing-coverts plain drab, slightly edged with white.

Of the other two specimens described as females, No. 21319 is a typical male, and this leads to a misunderstanding. The only female then, which Dr. Stejneger had was No. 113450. He mentions among true individual differences, the curious white ring around the eye in one specimen, the transposition of the white anterior wing-bar, the coloring of the lining of the wing, etc. These will be referred to again.

Salvadori, 1895, confesses that he does not understand the species. He thinks that domesticated mallards might have become feral and influenced *A. wyvilliana*. This seems to me to be not at all probable because of the small size of the species and its perfect uniformity as to measurements. Salvadori calls attention to the characters that distinguish the adult males and shows that young birds resemble adult females.

Rothschild, 1900, in two fine plates shows well the Mallard affinities of the species. His series is a large one and especially interesting are the few white flank feathers finely undulated with blackish brown which, together with the faint cross-barring on the abdomen occur only in his oldest males.

This series shows nothing of this sort and it is therefore probable, as suggested by Rothschild, that final male plumage is not obtained for several years. He picks out his younger males by the presence of spotted abdomen and absence of curled retrices, but this diagnosis would not hold in the series at hand, as will be seen in the above description of the males.

Rothschild calls attention to variability, which he considers greater in the female. In some of his female specimens white tips were present on the coverts which form the anterior edge of the speculum. The different appearance of the under wing-coverts

in his specimens is a form of variation which along with some others he says he cannot account for.

Aside, then, from certain other curious variations, we have in this species male birds with Mallard affinities readily distinguished from the females, a juvenile plumage like the females (Rothschild) very likely a partial eclipse plumage,— in which the males lose some of their characteristics,— and almost certainly some changes due to age. The lack of accurate dates makes any assumptions on this last point merely guesswork. A good deal of the difference in color of the lower parts in this series is, I believe, due to staining during life.[1]

I should like to point out what is at once the most noticeable variation, and one that is certainly separated from any question of age. This has to do with speculum bars.

In the males the first band anterior to the speculum is always black, but next to this there is a wide range of color difference. In one case there is a broad white band, in two cases a narrow white band, in two other cases a very indistinct buffy band, and in one case no band other than the black one, which here is very finely tipped with whitish.

In the females (*A. aberti* included) the anterior margin of the speculum is, in four specimens, bordered by a black band formed by black tipped greater coverts, next comes a band of buff color which shows a marked variation. In one case it is almost indistinguishable, while in three cases it varies from a very light buff to a russet color. In the fifth case, No. 113450, as Dr. Stejneger has described, the normal white bar is replaced by a grey one, while a new bar of pure white is interposed between the black bar and the speculum, an arrangement entirely unique and non-mallard like. The posterior end of the speculum appears to be always uniform, it is bordered by two bars, an inner black and an outer white. Thus we see a general tendency to variation anterior to the speculum, as was previously pointed out for *A. diazi*. There are several other minor points of interest about *A. wyvilliana*, one of which is a slight tendency to albinism in at least three specimens.

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[1] *cf.* Wilson Bulletin, XXI, p. 221.

ANAS ABERTI — ABERT'S DUCK.

This duck, represented by the single type specimen, taken at Mazatlan on the west coast of Mexico, was described by Mr. Ridgway in 1878 (Proc. U. S. Nat. Mus., Vol. I, p. 250).

At that time *A. wyvilliana* had just been described by Mr. Sclater from a male specimen, and the sex dimorphism of that species was not recognized. Mr. Ridgway compared his *A. aberti* (Type No. 12789 U. S. Nat. Mus.) with a specimen of *A. wyvilliana* thought to be a female. It appears, however from his description (p. 251) that this bird must have been a male (V-shaped breast markings, densely streaked throat, etc.) so that the similarity of *A. aberti* and *A. wyvilliana* escaped his notice.

In 1888 Dr. Stejneger (Proc. U. S. Nat. Mus., Vol. II, p. 99) took up the question of *A. aberti*. He says: "So close is the similarity that I am unable to distinguish No. 113450 (*A. wyvilliana*), from the type of *A. aberti* except by the larger size and the total absence even of an indication of supraocular or transocular stripes." Now a comparison of the size of *A. aberti* with four other undoubted female specimens shows that it is in one case even larger than *A. wyvilliana*. As to the stripes on the head, I can see no difference in comparing the two specimens above referred to by Dr. Stejneger and at best the supraocular and transocular stripes in the Hawaiian ducks are very indefinite. They are barely perceptible in the female and absent in the male.

A careful comparison of the type of *A. aberti* with the four other undoubted female specimens in this museum and the National Museum shows no essential difference in color, pattern or size, hence it appears that in the absence of any further material from Mexico *A. aberti* must be considered as a female Hawaiian duck, accidentally occurring in Mexico and no longer deserving a specific name. These facts are now probably perfectly familiar to Mr. Ridgway so that the above remarks are not to be taken at all in a critical sense.

FEMALES, A. DIAZI.

	57247	54132	57252	57239	57253	57251	54130	54129	54135	54131
Length of culmen	53	52	50	49	52	52	48	52	50	51
Depth of bill at posterior end of nostril	16	17	15	18	18	18	16	17	16	18
Tarsus	44	42	42	42	44	42	40	42	43	44
Wing	250	263	250	250	252	240	225	250	251	252

FEMALES, A. DIAZI.—*Continued.*

	54133	54125	54135	54126	54127	54123	54128	
Length of culmen	51	52	51	52	48	53	50	mean = 51
Depth of bill at posterior end of nostril	19	17	17	18	18	18	19	mean = 18
Tarsus	42	41	43	43	42	44	46	mean = 43
Wing	238	260	225	256	250	235	241	mean = 246

MALES, A. DIAZI.

	57246	54124	57250	57238	57256	57257	54122	
Length of culmen	52	55	53	54	50	53	51	mean = 52
Depth of bill at posterior end of nostril	21	19	18	19	18	19	18	mean = 19
Tarsus	44	46	46	43	44	46	44	mean = 45
Wing	275	270	245	241	280	225	272	mean = 258

MORNING AWAKENING AND EVEN-SONG.[1]

BY HORACE W. WRIGHT.

AT my summer home at Jefferson Highland in the White Mountains, New Hampshire, I have been interested in obtaining, as nearly as careful and systematic effort would enable me to do, the order and manner in which the summer-resident birds within range of hearing awake and voice themselves. Already some general impressions that the birds of certain species sang earlier than those of certain other species had been received, but it seemed to be worth while to obtain some exact records and learn whether there were definite and distinctive habits belonging to the common birds in regard to the time when they begin to sing. It was resolved, therefore, to procure a series of early morning records for comparison, and fifteen such records are now possessed, obtained on May 27 and June 2, 1902; June 8 and 28, 1903; June 11 and 16 and July 5 and 9, 1904; June 10, 1905; July 9, 1906; July 4, 1908; June 27, 1909; July 4, 1910; and June 28 and July 4, 1911. The range of date is nearly equidistant before and after the summer solstice. The variation in time of sunrise for thirteen of the records is but five minutes, the earliest sunrise, 4.02 o'clock, occurring midway within the dates of these thirteen records. The two other records extend to a variation of nine minutes in the time of sunrise. These variations affect but slightly the resulting averages of time derived from the series and have no effect to alter the relative places of the species in the order of their awakening. So they have been regarded as negligible. This period of the season was chosen, because it is the time when the birds in general are singing most freely and are definitely located for nesting.

That the first bird-note of the morning might be chronicled and assurance be had that the earliest had been heard, position has usually been taken fifteen or twenty minutes previous, as the experience of the first two or three occasions indicated the time to be. This has been done from 2.35 to 2.50 o'clock. The position

[1] Read before the Nuttall Ornithological Club, Cambridge, Mass., April 1, 1912.

taken on each occasion has been upon the driveway midway between the house and the road, or about fifty feet from either, with open lawn around. The record has usually extended over two or two and a half hours, that is, up to 5 or 5.15 o'clock.

The elevation of the location is about 1600 feet above the sea. The place is situated on the southwestern slope of Boy Mountain, which is a part of one of the secondary ranges and rises to a height of 2240 feet, the summit being somewhat north of east. The sunshine, therefore, is delayed in reaching the location and its immediate vicinity. The rays of the sun are seen on the mountains across the narrow valley some time before they have reached the listener's position, and still earlier they have brightened with rosy light the heads of the Presidents uplifted higher into the sky. Thus there is a pervasive light thrown around much before the birds whose voices have been chronicled come within the range of the sun, which is not until forty-five minutes or an hour after its actual rising.

A row of maples together with other shade trees borders the nearer roadside, while across the road, beyond a mere border of grass land, mixed woodland reaches up the mountain side. Farther eastward from this woodland is open, rocky, hillside pasture, dotted with individual spruces and firs. Mowing fields stretch away southeastward. Westward and about five hundred feet distant woods of mixed growth extend to the river which is some three hundred feet below in the valley bottom. These woods are well occupied by songsters, especially warblers of many species, whose songs are heard when at the close of the morning-awakening record the footpaths through them have been followed. But these voices within the wood have seldom reached up to the position chosen and entered the records obtained. The warblers and other songsters, however, which occupy the woodland bordering the road are well within the range of hearing, as well as the birds of the fields, the open hillside pasture, and the roadside.

Taking position with paper block in hand and assisted to make notes by the light of a small electric lantern or a candle, as the case may be, the first bird-note has been waited for. Meanwhile a few minutes of complete stillness have continued the silence of the night, this stillness being broken only by the distant sound of

the flowing river or by the occasional piping of a hyla or croaking of a frog in a pond-hole some distance away, and once by the voice of a Whip-poor-will coming up from the valley. A few fireflies flitting about have often given a touch of animation to the foreground. Although at this time the darkness of night still prevails, the first glimmer of light has been apparent in the eastern sky even at 2.40 or 2.45 o'clock. This is soon followed by the first bird-notes, a Song Sparrow or a Chippy not far away breaking forth into its song once, or perhaps the song of an Alder Flycatcher in the middle distance once given, or the twitter of Barn Swallows at the nearest farm barn, or the sudden awakening and cackling of a Robin near by. Our neighbor's cocks also awake and crow at this time. The sparrows mentioned above at first give repetitions of their song at intervals only, two or three individuals of each species thus expressing themselves, but presently a Robin breaks forth into singing and continues with scarcely an interruption for about forty-five minutes, singing most joyously. The first Robin is soon joined by a second and a third and a fourth, their voices uniting in a loud and exuberant chorus. One Chipping Sparrow after another also joins in until three or four are singing, and these repeat their trills shortened from the usual length in a most hurried and excited way, seeming to be animated by a spirit of eager haste which is not manifested in their singing later in the day. Already one voice after another from several different species within range has joined in the concert. Meanwhile the pale light of the dawn has gradually brightened in the eastern sky and a faint light has begun to be diffused around. This is still quite dim at 3.15, but at 3.25 or 3.30 it has become sufficient to dispense with artificial light and begin to see by the light of day.

The birds remain on their night perches apparently until after 3.30 and commonly until 3.45 or 3.50, or even 4 o'clock. For the voices up to this time come from the same locations and the songs reach the ear unchanged in sound as to direction or distance. Moreover the light by 3.30 o'clock has become sufficient for discerning a bird if it were in motion. The earliest record of movement which has been noted, with one exception mentioned later under the Robin, was that of a Chipping Sparrow dropping from its perch in a maple by the gate to the driveway at 3.30 and con-

tinuing to sing there. On two other occasions, two years apart, a Chippy which had evidently spent the night in this maple by the gate dropped down onto the gate-post at 3.43 and 3.49 respectively. Barn Swallows have passed singing at 3.32 and 4 o'clock. A Robin was once seen to fly at 3.35 from one roadside maple to another. A Hummingbird once flew by at 3.52 and on another occasion was seen hovering among apple blossoms at 4 o'clock. The earliest Crow on the wing was seen at 3.53 and on another occasion at 4 o'clock. Two Cedar Waxwings once flew forth and about at 3.56 o'clock. The earliest Phœbe in flight dropped into the road at 4 o'clock. By 4.15, or directly after sunrise, there is general movement and activity. By that time most of the usual birds in the neighborhood have sung, and some have already finished their welcome to the day and are busily seeking their food.

On the fifteen occasions forty-six species which had spent the night near by have been recorded. Thirty-four of these were heard on many or several occasions, and twelve on one or two occasions only. The records of the latter class, however, are definite and, perhaps, of not inferior value. They represent species usually beyond the range of hearing yet on the single occasion or two located near. On three of the occasions nineteen or twenty species only contributed to the concert, but on five others twenty-nine or thirty different voices were heard.

Mornings that were calm and of about normal temperature were chosen. But twice the temperature was as low as 46° and 52° and once as high as 76°, namely, on the morning of July 4, 1911, a new maximum night record. Several mornings were clouded, however, the cloudiness increasing and two or three times culminating in rain a half-hour or so before the usual time of closing the record. Under these conditions some later voices naturally failed. Thus on July 4, 1910, a few drops of rain fell at 4 o'clock; at 4.23 there was a distant roll of thunder and a storm-cloud was seen to fill the western sky; at 4.35 it became very dark, and a few minutes later wind and rain had come. In ten minutes more the force of these had passed, but a gentle rain continued. Every voice had been stilled by the brief tempest, and when its noise had subsided not a note was heard. Five minutes later a Song Sparrow sang. Twenty species only had voiced themselves before the rain.

It does not appear that cloudy conditions have had an influence to any extent in delaying the time of early song. The records indicate that the early-singing sparrows and flycatchers, the Robin and other thrushes sang as early on some clouded mornings as on some fair mornings and in some instances even a few minutes earlier. Neither has the moon appeared to exert any influence, as it has usually been either the time of new moon, or a day or two before, or when it was in the first quarter, in all which phases there has been no moonlight at the time of morning-awakening. On four occasions when there was moonlight the sky was clouded, and the records indicate that the earliest singers were a trifle later in beginning to sing, the cloudiness offsetting whatever gain of light from the moon there may have been. It is a question, not answered by the records, whether bright moonlight influences the early songsters to sing earlier than when the sky is only starlit, since none of the records have been obtained under moonlight. It seems, however, not unlikely that bright moonlight has no effect to awaken earlier the early-singing birds, but that they instinctively await the first glimmer of daybreak before singing.

The combined records indicate that the birds of thirty-three species averaged to sing before the time of earliest sunrise, that being 4.02 o'clock. Included among these are nine members of the sparrow family, five of the common sparrows having place among the earliest eleven songsters; all six members of the thrush family from the Robin as the third bird to the Olive-backed Thrush as the seventeenth; the five common flycatchers, these having place among the earliest nineteen songsters; Black-billed Cuckoo, Ruby-throated Hummingbird, Crow, Barn Swallow, Red-eyed Vireo, Blue-headed Vireo, Chickadee; and six species of warblers, all which have place among the last sixteen of the thirty-three species which sing before sunrise. The Oven-bird, the earliest warbler, does not average to sing before 3.29 o'clock, or thirty-three minutes after the Song Sparrow and twenty-seven minutes after the Robin. The Redstart, the next earliest warbler, does not sing until seventeen minutes later. Then in the sixteen minutes preceding sunrise five other warblers begin to sing. Still five other species of warblers have not been heard until after the sun has risen. Perhaps in other locations some of the warbler voices would have been

earlier heard, but they have been listened for most carefully and have not been detected earlier than as recorded. The warblers, therefore, as a family appear to be comparatively late-awakening birds to sing. Most of the common sparrows and the flycatchers and all the thrushes precede them. The warblers also at the close of the day cease singing early, again the common sparrows and the flycatchers and the thrushes outdistancing them in extension of song, as in the morning by beginning earlier to sing. The Bobolink apparently waits for the sun to appear and then rises joyously on wing and pours forth his abundant song. The calls of the woodpeckers come after sunrise, and the voice of the Swift is then first heard.

The principle of averages which has been adopted for the record was suggested by the diversity of time of first song on the part of birds of many of the species, of which several records had been obtained. But if the relative order of species be based on the earliest singing of an individual upon any one occasion, still ten of the first eleven species in the list remain the ten earliest songsters, although the relative position in the case of several is somewhat changed. On this basis Song Sparrow remains first, having sung at 2.40; Chipping Sparrow remains second, at 2.45; Robin remains third, at 2.46; Barn Swallow becomes fourth, also at 2.46; Vesper Sparrow is fifth, at 2.47; Alder Flycatcher is sixth, at 2.53; Savannah Sparrow is seventh, at 2.54; Hermit Thrush is eighth, at 2.56; Phoebe is ninth, at 2.57; and Wood Pewee is tenth, at 2.58 o'clock. The White-throated Sparrow, sixth on the basis of averages, takes a lower place in the order, not having been heard earlier than 3.05 o'clock. Fractions of a minute resulting in deducing averages have been discarded. Where two or three species are recorded alike in time of awakening to sing, the fractions, smaller and greater, have determined the order of precedence. In instances, in which a time record or two of a species are considerably later than most records of the species and would tend erroneously to make the average time of first song somewhat later, these records have been eliminated in the reckonings, with the sole purpose of obtaining results most closely in accordance with the facts.

The author would desire it to be understood that, while he has endeavored to be accurate, he regards the figures of time given as

close approximations to the true rather than as absolutely exact. And it should also be understood that the entire paper is the result of the author's records and individual experience in this mountain hamlet.

The order of awakening follows in detail. It should be borne in mind that the time of the earliest sunrise within the period of the season covered is 4.02 o'clock.

1. The SONG SPARROW (*Melospiza melodia melodia*) breaks forth into song in an occasional way first of all the birds, much as it has sometimes been heard to do in the hours of the night, giving, it may be, a single rendering or two only. A second and a third bird usually promptly follow the first, also singing in this occasional way, and thereby differentiating this singing from the casual expression of song of a single bird in the night hours. The earliest recorded time of song is 2.40 o'clock. On six other occasions the times of first song have been 2.47, 2.52, 2.54 (twice), 2.56, and 2.59 o'clock. On four occasions the first song was at 3 and on one other at 3.10 o'clock. This occasional singing at intervals often continues for forty-five minutes, and then the songsters give themselves over to song for a period, their voices becoming more prominent in the morning chorus. The records of these twelve occasions establish the average time of the first song as *2.56* o'clock. The average time of more free and constant singing is 3.36 o'clock. The very infrequent repetition of the song for the first forty-five minutes, or thereabouts, constitutes the Song Sparrow an inconspicuous first songster, while it really is the earliest in point of time, based upon averages of records.

2. The CHIPPING SPARROW'S (*Spizella passerina passerina*), earliest record for song is 2.45 o'clock. There are twelve records of first song between 2.45 and 3.15 o'clock. These establish the average time as *2.58* o'clock. As in the case of the Song Sparrow, the Chippy gives its trill, it may be, a single utterance or two only, and other repetitions may not come for some minutes; then another considerable pause may follow. But the second, third, and usually a fourth bird without much delay awakening to sing in this occasional manner, the singing must be regarded as the expression of morning song and be distinguished from the casual utterance of a single bird in the hours of the night, which is of a transient

and capricious character. This occasional singing often continues for fifteen or twenty minutes, while the birds are fully waking up; and then the several songsters begin to sing very rapidly, repeating their trills with precipitate haste and almost without pauses. I have never heard a Chippy sing in this manner at any other time of day. This rapidly repeated trilling is continued for a while, and then the birds, having apparently expended their surplus of energy, drop into their usual way of singing and continue indefinitely.

3. The ROBIN (*Planesticus migratorius migratorius*) comes third in the order of the awakening. Three or four singing birds are usually within near range. The earliest record of the song has been 2.46, when on June 27, 1909, a bird began to sing without previously calling, followed by a second bird in song two minutes later, and by a third bird singing three minutes later still. Often the Robin gives calls a few minutes before breaking into song. The average time of first song based on twelve records is *3.02*, the time ranging from 2.46, 2.53 and 2.54 to 3.10 and 3.12 o'clock. The birds with little variation continue to sing lustily and joyously for forty-five to fifty minutes. Then there is a pause of some length during which scarcely a robin song is heard, and within the hour following the first period of free singing only occasionally is the song given and only for a brief time usually. The period of exuberant singing is from 3.00 or 3.10 to 3.45 or 3.50 o'clock. Before 4 o'clock, therefore, the Robins have poured forth their ectasy of song, not to be equalled again during the day, howbeit, one and another may indulge in periods of singing at almost any hour. All sing together at the early hour named and with the joyousness and freshness of spirit which daybreak inspires.

On July 4, 1911, the father of a brood, snugly in their nest among the woodbine clambering on the front of the house, wakened on his night perch in a maple by the roadside at 2.50 and suddenly gave a few loud calls. After a minute or two, with solicitous thought of his family, it was evident, he flew to the end of the ridge-pole, and stationing himself, quietly for a moment, at 2.53 broke forth in calls again, and these were immediately followed by song much more softly voiced than usual and continued a briefer time. This short flight constitutes the earliest bird-movement on the wing which I have discerned.

The lusty character of the Robin's song from the time of its beginning throughout its first forty-five minutes' period of singing constitutes it the conspicuous early singer and makes it appear to be the earliest singer of all, whereas the Song Sparrow and the Chipping Sparrow both precede the Robin in a few earlier expressions of song. These, however, are later than the Robin in giving themselves over to singing and in attaining the full spirit of exuberance which the Robin attains at once upon beginning to sing.

4. The ALDER FLYCATCHER (*Empidonax trailli alnorum*) was once heard to sing as early as 2.09, repeating the song at 2.23 and again at 2.35, on June 16, 1904. On another occasion a bird sang at 2.18 twice and at 2.29 again. These, doubtless, should be regarded as utterances in the night, such as the Song and the Chipping Sparrow and the Oven-bird have sometimes been heard to make. These birds began to sing in the usual way with repetitions after short pauses at 2.53 and 2.54 respectively. Ten records furnish the average time of *3.03* for the first singing, the range having been from 2.47, 2.53 and 2.54 to 3.15 (twice). The song is often continued thirty or forty minutes, but sometimes is lost to the ear much sooner. Frequently two birds have been within the range of hearing, the second beginning to sing soon after the first.

5. BARN SWALLOW (*Hirundo erythrogastra*). The twitter of a colony at a neighboring farm barn has been one of the earliest sounds. It is steadily maintained and seems to proceed at first from the birds on their night perches. The earliest record is 2.46 on July 9, 1906. Other earliest records are 2.51 and 2.59 (twice). The average time based on eleven records is *3.04* o'clock. A little later the song comes from the air as the birds circle in flight,— once even as early as 3.32,— when the light is still quite dim and scarcely any other birds have left their night perches.

6. The WHITE-THROATED SPARROW (*Zonotrichia albicollis*) is not located within hearing on the Highland, but is a regular summer resident of the valley. Only occasionally at any hour has its voice been heard at the house or in the yard. But on June 27, 1909, at *3.06* the song came up distinctly to the ear and was recorded. On one other occasion, June 23 of the same year, when I was at Cherry Pond for the night, the song was first heard at 3.05 in the morning from a bird near at hand.

7. The WOOD PEWEE'S (*Myiochanes virens*) voice has not always been within hearing. Eight records give the average time of its first song as *3.06* o'clock. The earliest record has been 2.58 and the latest 3.12 o'clock. A single singer only usually joins in the concert, and his plaintive song has reached the ear in an occasional way.

8. The VESPER SPARROW (*Poœcetes gramineus gramineus*) also comes into the group of birds which sometimes sing before 3 o'clock. The earliest occasion was at 2.49; the next earliest at 2.58 o'clock. The average time of beginning to sing, based on nine records, is *3.07* o'clock. Sometimes two birds have been within hearing. The singing is continued commonly for forty-five minutes or an hour without long pauses.

9. The HERMIT THRUSH (*Hylocichla guttata pallasi*) invariably calls for a few minutes before breaking into song. When a bird has been located near, the calls have always been first noted; but when the birds are more distant, the song comes as the first voicing heard. Therefore the species has been assigned its place on the basis of the time of its beginning to sing. Three or four singing birds have sometimes been within the range of hearing. The average time of the first call heard, based on ten records, has been 3.06 o'clock. The earliest records are 2.56 and 2.59 o'clock. The average time of the first singing is *3.11*, or five minutes later than the first call. The song is always continued in the beautiful, calm manner characteristic of the species, first in one of the three registers and then in another with endless variety of change, quite indefinitely; with pauses, to be sure, but it is likely to be heard much of the day, even at noon. At Cherry Pond the first singing of a Hermit Thrush in the morning was at 3.10 o'clock.

10. PHŒBE (*Sayornis phœbe*). The usual time of awakening places the Phœbe tenth among the earliest birds. Ten records furnish the average time of *3.11*, when the song has first been heard. The earliest awakenings have been 2.57 and 3.05 o'clock. The song is usually continued without much pause for an hour or more. On June 11, 1904, a near bird broke out demonstratively at 3.10, contributing the Phœbe song of the morning.

11. SAVANNAH SPARROW (*Passerculus sandwichensis savanna*). The light voice of this bird is sometimes not near enough to be

heard, and it is also lost at times when the music of the morning becomes *fortissimo*. Based on seven records, the average time of the first song is *3.12* o'clock. The earliest awakening was at 2.54 on June 10, 1905, when the song was given once, followed by another rendering at 3.00, another at 3.07, and the next at 3.15, after which the song was constant with brief pauses only. The average time of getting into constant singing is 3.27 o'clock. One bird only is usually within hearing.

12. The VEERY (*Hylocichla fuscescens fuscescens*) is usually located too remotely to be heard among the near songsters. Toward the end of the recording the voice of one has been heard on three occasions, either calling or singing, some distance below, namely, at 4.40 and 5.00 (twice). But after the night at Cherry Pond, in the haunt of the Veery the song was heard at *3.13* in the morning from one bird, soon followed by three others. This record, which plainly should take precedence, places the Veery near the Hermit Thrush in the time of its beginning to sing.

13. The BLACK-BILLED CUCKOO (*Coccyzus erythrophthalmus*) has twice been heard at 4.15 and 4.29 respectively. On a third occasion, when I was at Cherry Pond, one began to call at *3.20* in the morning. This record, obtained in the haunt of the Cuckoo, should give the species its relative place, as the later records undoubtedly were not the first morning voicings of the birds.

14. The KINGBIRD (*Tyrannus tyrannus*) has been located but once within the range of hearing. On July 4, 1908, at 3.22 one was heard. On the occasion of my spending the night at Cherry Pond a bird was first heard at 3.24 in the morning. These two records furnish an average time of *3.23*; although it is not improbable that if other records had been obtained, the Kingbird might rank somewhat earlier in the list.

15. The BLUEBIRD (*Sialia sialis sialis*), has been located several seasons beyond the range of hearing. Four records furnish an average of *3.25* as the time of first singing. The variation is small, namely, 3.20, 3.24, 3.27, and 3.30 o'clock. The call was heard on one occasion at 3.15 o'clock. Usually the song is continued but a few minutes, five to twenty, when the bird passes out of hearing or becomes silent. But on July 9, 1904, one beginning to sing at 3.20 continued its song most joyously and steadily until

4.30, so that the record states "Have never before heard so much bluebird song in an hour; the singing is almost as loud as a robin's."

16. The WOOD THRUSH (*Hylocichla mustelina*), as yet a rare bird in Jefferson, in three seasons has been located well within hearing, namely in 1904, 1905, and 1908. Five records have been made, three having been obtained in 1904. The earliest singing was at 3.25 on June 16, 1904. On June 11, 1904, and June 10, 1905, the song first reached the ear at 3.26 on both occasions. On July 5, 1904, and July 4, 1908, it was first heard at 3.38 o'clock. On the earliest occasion the bird continued its song for thirty minutes without much change of location and then moved farther up the mountain side and was heard at intervals for another thirty minutes. Upon the next two earliest occasions the song was heard for five or ten minutes only, when the bird probably moved out of hearing. On the fourth and fifth occasions, when one was first heard at 3.38, the voice was well back in the woodland on the mountain side and twenty minutes later had come much nearer. Not unlikely the bird at each of these times had been singing earlier. The relative position of the Wood Thrush, therefore, would seem to be properly based on the three earlier records, when the songster from the beginning was located near. The average time of first song will then be *3.26* o'clock. The voice has always been in association with the Hermit Thrush's and sometimes also with that of the Olive-backed Thrush.

17. The OLIVE-BACKED THRUSH (*Hylocichla ustulata swainsoni*), while an abundant bird in all woodland, has been favorably located for hearing its first song on three occasions only, the listener's position being in the open, while the Olive-back is commonly too far within the wood, both in front and rear, for its voice to be readily heard. The average time of its first song on these occasions was *3.27*, the three records being 3.21, 3.26 and 3.35 o'clock. On two of these occasions the songster continued to sing with only slight interruptions up to 5 o'clock, when the record was closed. So the voice was recorded as the most regular and constant among the voices of the morning.

18. The OVEN-BIRD (*Seiurus aurocapillus*) is the earliest of the warblers to voice itself. Like the Song Sparrow and the Chipping

Sparrow it occasionally breaks forth in the night, giving a song which is after the manner of its flight song, although the bird at so early an hour may not leave its perch. On June 27, 1909, one burst forth in such a song at 2.12 and was again heard at 2.57, while it was 3.43 when it began to sing in its usual way. Eleven records give the average time of first song as *3.29*, the earliest records, eliminating night utterances, having been 3.09, 3.12, and 3.17, and the latest 3.41 and 3.43 o'clock. Two birds have often been heard.

19. The LEAST FLYCATCHER (*Empidonax minimus*), while located both higher and lower on the mountain side, has been but once within the range of hearing. On June 28, 1911, the song from one located near was heard at *3.30*, and the bird continued to sing up to 5 o'clock or later. It is not improbable that if more records had been obtained, the Chebec might rank higher in the order, as do the other common flycatchers.

20. The FIELD SPARROW (*Spizella pusilla pusilla*), is a rare bird in Jefferson. But one was temporarily located in 1911 on the mountain side, and its voice entered the morning-awakening record on July 4 at 4.06 o'clock. It had undoubtedly been singing earlier, and the voice had not reached the ear. At 4.24 the song was heard much more plainly. On June 19, 1908, a Field Sparrow had been heard singing eight or ten times beginning at *3.30*, before I rose, and was still singing in the neighborhood at 5.15 o'clock. This earlier record places the Field Sparrow among the other sparrows, which as a family are early singers.

21. SLATE-COLORED JUNCO (*Junco hyemalis hyemalis*). The range of record of the Junco's first singing is rather wide, extending from 2.55 and 2.58, when the song was heard only once or twice on two occasions, to 3.49, 3.50 and 3.51 on three other occasions. The average time based on thirteen records is *3.31* o'clock. The song is often continued for more than an hour. Usually one bird only has been within hearing.

22. The CHICKADEE'S (*Penthestes atricapillus atricapillus*) song has been heard on six occasions, namely, at 3.30, 3.43 (twice), 3.45 (twice), and 3.50 o'clock. The average time has been *3.43* o'clock. On May 27, 1902, one beginning to sing at 3.43 continued his song for some time.

23. RED-EYED VIREO (*Vireosylva olivacea*). The song being of a quiet and monotonous character and as such not appealing strongly to the ear, at least such is the recorder's usual experience, particular pains have been taken to note the time of beginning of its song and not allow it to pass unnoticed. Four or five birds are usually within the range of hearing. As 3.33 is the earliest time recorded, the species does not awake early to sing. And the range of time of first song which thirteen records furnish indicates a small variation only, as the latest time recorded is 3.53 o'clock. On four occasions it has been between 3.33 and 3.39 and on nine other occasions between 3.41 and 3.53 o'clock. The average time of the thirteen records is *3.43* o'clock. Sometimes the phrase of the song is repeated quite rapidly for a few minutes at the time of beginning. Usually the birds continue to sing without much pause for thirty or forty minutes or even an hour, and then, as is well known, with short rests most of the day.

24. The CROW (*Corvus brachyrhynchos brachyrhynchos*) is a comparatively late riser, as it ranks twenty-fourth among the common birds in the time of voicing itself. While it is not the twenty-fourth bird on any one occasion, since all its predecessors which have been named in order do not appear in the chorus on any one morning, it has always been the twelfth bird or later in the succession of the awakening. Fourteen records show that the earliest times at which a Crow has been heard to call were 3.35 and 3.36 o'clock. On the former occasion Chipping Sparrow, Robin, Alder Flycatcher, and Vesper Sparrow had sung at 2.45, 2.46, 2.47 and 2.49 respectively. The average time of the first call is *3.44*, or not until after the Robin has sung for forty-five minutes or even an hour and from eleven to sixteen species have already voiced themselves. The range in time is narrow, since the latest is 3.56 o'clock. The variation, therefore, in the Crow's awakening is only twenty-one minutes on the fourteen occasions ranging in date from May 27 to July 9 and covering ten seasons. If the latest-time record were eliminated, the latest remaining would be 3.52, and the variation for thirteen records would be but seventeen minutes, constituting the Crow one of the most regular of the common birds. A single bird is usually first heard located somewhere upon the mountain side, and later two birds often appear in flight. The Crow was

earliest seen in flight on one occasion at 3.47 o'clock, when two passed silently overhead. On one other occasion a single bird was seen on the wing at 4 o'clock.

25. REDSTART (*Setophaga ruticilla*). If the Oven-bird be excepted, the Redstart introduces the warbler singing. All warbler song is delayed on the average until 3.29, when the Oven-bird begins to sing. The Redstart, based on ten records, averages to sing seventeen minutes later, or at *3.46* o'clock. It has been heard once as early as 3.26, but on three other occasions was first heard at 3.55, 3.56 and 3.58 respectively. Two and sometimes three birds sing within hearing. On June 28, 1911, the first bird began to sing at 3.41, the second was heard at 3.49, the third at 3.52, and the three continued singing much of the time up to 5.15 o'clock.

26. The INDIGO BUNTING'S (*Passerina cyanea*) position in the list is based on six records. In some of the years no bird has been within hearing, although year by year several have been located in the neighborhood. In the seasons of record two and sometimes three birds have sung. The six records give the average time of first song as *3.51*, and they vary but little, being 3.45, 3.50, 3.51 (twice), 3.54 and 3.58 o'clock. The birds after beginning to sing continue most persistently, for while there may be occasional pauses, yet the song is heard much throughout the day.

27. MARYLAND YELLOW-THROAT (*Geothlypis trichas trichas*). The first song, based on five occasions, when a bird was located near, averages to come at *3.51*, the time ranging from 3.41 to 3.50, 3.53 and 3.55 (twice). The flight song in the night has sometimes been heard.

28. The BLACK-THROATED BLUE WARBLER (*Dendroica cærulescens cærulescens*) was heard on one occasion at *3.52*, the bird being located near at hand. It is unusual for this warbler to be heard unless the listener goes within the woodland.

29. The BLUE-HEADED VIREO (*Lanivireo solitarius solitarius*) has been within hearing but once on these occasions. At other times and seasons its voice has been much heard near the roadside or from the wood borders, but at the season the records have been made the voices have been too much within the woodland and too far away on the mountain side to be heard. But on July 4, 1908,

at *3.52* one sang beside the road in the foreground. As the Red-eyes do not average to sing before 3.43, quite likely this single record is fairly representative.

30. The NASHVILLE WARBLER (*Vermivora rubricapilla rubricapilla*) has been heard but twice, namely, at 3.50 and 3.56 o'clock. The nesting haunts of the species on the Highland are usually beyond the range of hearing. The time of first song based on the two records obtained, when a bird was located sufficiently near, is *3.53* o'clock.

31. The MAGNOLIA WARBLER (*Dendroica magnolia*) has been heard on seven occasions, the time of the first song varying from 3.42 (twice) and 3.47 to 4.09 (twice). The average time is *3.55* o'clock. On the two other occasions the first song heard was at 3.58 and 3.59 o'clock. A single bird only is usually within the range of hearing and is sometimes heard at intervals for twenty or thirty minutes or even an hour.

32. GOLDFINCH (*Astragalinus tristis tristis*). The first call, as based on eleven records, averages at *3.58* o'clock, the time ranging from 3.49, 3.50 (twice), 3.52 and 3.54 to 4.10 and 4.18 o'clock. Calls have invariably constituted the earliest records, and later by some minutes the song has been heard, if given at all; for in June and early July the joyous outpouring of song on the wing is not as much given as somewhat later in the season.

33. The BLACK AND WHITE WARBLER (*Mniotilta varia*) has been heard on one occasion only, namely, at *4.04* o'clock.

34. PURPLE FINCH (*Carpodacus purpureus purpureus*). The relative position is based on ten records which range from 3.18, 3.37 and 3.43 to 4.40 and 4.46 and furnish an average of *4.05* as the time of its first voicing. On several occasions a bird has sung. At other times the call-note only has been heard either from one in flight or from several feeding in a near Juneberry tree (*Amelanchier canadensis*), which were giving little thought to song, while they eagerly feasted on the small fruit. In this tree on July 4, 1908, at 4 o'clock one sang while several were engaged in feeding. On another occasion two were seen in this tree silently eating the fruit at 4.20, which had given neither call nor song that had been heard and were apparently absorbed in first satisfying their hunger.

35. The BLACKBURNIAN WARBLER (*Dendroica fusca*) has fur-

nished five records, when one has been located favorably within hearing. The time of first song has ranged from 3.40 to 4.17, but on the three other occasions was earliest heard at 4.05, 4.10 and 4.11 respectively. The average time is *4.05* o'clock.

36. The BOBOLINK'S (*Dolichonyx oryzivorus*) time of first singing is based on nine records, ranging from 3.59 twice, 4.01 and 4.03 to 4.21 (twice) and 4.22, the average time being *4.10* o'clock. On June 11, 1904, it was precisely 4.10 when one first poured forth on the wing his song of ecstasy.

37. The YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius varius*) has been heard to call and drum on three occasions, the first sounds coming at 3.51, 4.10 and 4.30 respectively. The drumming is done upon telephone posts at the roadside. The calls usually come when the bird is at work upon birches or apple-trees. The average time of making its presence known has been *4.10* o'clock.

38. CHIMNEY SWIFT (*Chætura pelagica*). As it passes in rapid flight through the air, the Swift's voice has been recorded on ten occasions, ranging in time from 3.58 and 4.00 to 4.24, and averaging *4.10* as the time of its appearance on the wing from its night's rest in the chimney. Thus the Swift appears only two or three minutes before sunrise at the earliest and usually delays until a few minutes after.

39. The BLACK-THROATED GREEN WARBLER (*Dendroica virens*) furnishes three records when one has been located within hearing. Usually the voices of the two or three birds in near woodland are not heard until one has gone within the woods. The time of first song heard on these three occasions has been 3.56, 4.17 and 4.26, which give an average time of *4.13* o'clock.

40. NORTHERN PILEATED WOODPECKER (*Phlæotomus pileatus abieticola*). There are eight records, when a bird has been heard loudly rapping in the distance with slow and measured blows or has called lustily and long, sometimes answered by another. The times of first hearings range from 3.46 and 3.55 to 4.39 and 4.48 and average *4.16* o'clock. Both the calls and the rappings are so loud that they cannot easily be overlooked even if the bird or birds be a half-mile distant either in the valley or on the mountain side.

41. CEDAR WAXWINGS (*Bombycilla cedrorum*) have made known their presence by their soft sibilant calls on seven occasions, the

time ranging from 3.56, 4.04 and 4.05 to 4.40 o'clock. On three occasions the records are 4.31 and 4.32 (twice). The average time when the birds were first heard has been *4.20* o'clock.

42. NORTHERN PARULA WARBLER (*Compsothlypis americana usneæ*). The time of first singing is based on a single record, when the song was heard at *4.22* o'clock. The birds of the species with this single exception have been out of the range of hearing within the lower woodland.

43. The MYRTLE WARBLER (*Dendroica coronata*) has been within hearing on three occasions and has been first heard at 4.20, 4.26 and 4.30 respectively. The average time is *4.25* o'clock. In most seasons the small representation of the species in the immediate vicinity is located too far away to be heard from the listener's position.

44. The CHESTNUT-SIDED WARBLER (*Dendroica pensylvanica*) has sung on four occasions. At other times the species has been located too remotely to be heard. The four records furnish an average time of first song as *4.37*, the earliest singing heard having been at 4.21 o'clock.

45. The DOWNY WOODPECKER (*Dryobates pubescens medianus*) furnishes seven records, when a bird or two birds have given either the single call-note or the long roll-call. The time has ranged from 4.17 to 5.00 and averages to have been at *4.43* o'clock.

46. The CANADA RUFFED GROUSE (*Bonasa umbellus togata*) was twice heard drumming in late May, 1902, at *5.10* o'clock on both occasions.

Other species entered into the records made, but as the birds apparently had not spent the night close by, but came within hearing in an adventitious way, they will simply be named and the time given when they were first heard: Whip-poor-will, 2.45; Nighthawk, 3.15; Ruby-throated Hummingbird, 3.52; Crossbill, 3.58; Crested Flycatcher, 4.00; Cliff Swallow, 4.08; Pine Siskin, 4.14; Scarlet Tanager, 4.15; Winter Wren, 4.15; Blue Jay, 4.21; Rose-breasted Grosbeak, 4.30; White-winged Crossbill, 4.30; White-breasted Nuthatch, 4.30; Tree Swallow, 4.40; Northern Flicker, 4.40; Mourning Warbler, 4.45; Prairie Horned Lark, 4.53; Canada Warbler, 5.00; Red-breasted Nuthatch, 5.00; Belted Kingfisher, 5.10; Olive-sided Flycatcher, 5.20 o'clock.

Several records at the end of the day have also been taken, but these are much more limited as to the number and variety of the voices participating than in the morning awakenings. By these records twenty-six species have been heard between 7 and 8.20, when the time of sunset was about 7.30 o'clock. Only three species of warblers have been heard to sing within this period and their last songs been recorded, namely, Redstart at 7.38, Magnolia at 7.40 and Oven-bird at 7.49, in each case the song being about as long after sunset as in the morning their respective earliest songs were before sunrise. An Oven-bird on one occasion gave its flight song at 7.28 o'clock. The Bobolink's last burst of song was at 7.20, or just before the time of sunsetting, as in the morning his first joyous song on the wing is at sunrise. The Indigo Bunting ceased singing about 7.23, or seven minutes before sunset. His morning record is ten minutes before sunrise. The Crow's last call came at 7.26 o'clock. The Goldfinch and the Purple Finch ceased at 7.25 and 7.35 respectively. They both enter the morning record a few minutes only before and after sunrise. The Crested Flycatcher was not heard to call after 7.27 o'clock. Chimney Swifts last scurried round in hurried flight giving their bubbling outpouring of notes at 7.28, two minutes before sunset; their morning record is eight minutes after sunrise. A White-throated Sparrow's voice from the valley was lost at 7.45, and a Field Sparrow's from the hillside at 7.48 o'clock. Three common flycatchers ceased to sing at about the same time, the Least at 7.44, Phœbe at 7.47, and the Wood Pewee at 7.50 o'clock. The latest twitter from Barn Swallows came at 7.54 o'clock. The last songs from Chipping Sparrow, Savannah Sparrow, and Song Sparrow were at 7.52, 7.55, and 7.57 respectively. All the five thrushes, Wood, Veery, Olive-backed, Hermit and Robin, were the latest of all the birds to voice themselves, with the exception of the Vesper Sparrow and the Alder Flycatcher, which were also among these latest singers. The Wood Thrush was last heard to call at 7.53 and again at 7.58 o'clock. The Veery sang up to 8 o'clock; two Olive-backed Thrushes to 8.02, and one to 8.05 o'clock. The Vesper Sparrow continued to sing to 8.07; and the Alder Flycatcher sang twice at 8.15 and 8.16, when his voice was hushed. The Hermit Thrush after a period of continuous singing gave his last

call at 8.17, and the Robin sang his last notes at 8.18 o'clock. The Robin and the Hermit are always close rivals as to which shall sound the last note. After an interval of two or three minutes, when neither has voiced itself, one or the other will again render a phrase of song or give a few calls. Calls are usually the last notes heard. The Robin generally triumphs by a minute or two. Then all the voices are hushed for the night, except that a Song Sparrow or a Chippy may break forth sleepily to give its song once even an hour later, as they sometimes do in the night before beginning their morning singing.

The same species, therefore, which sing earliest at daybreak also sing latest at twilight, and they cease singing, generally speaking, in a reversed order, although there are some variations in the order. These earliest and latest singing species are the common sparrows, namely, Vesper, Savannah, White-throated, Chipping, Field, Junco, and Song; the common flycatchers, Kingbird, Phœbe, Wood Pewee, Alder, and Least; and the thrushes, Wood, Veery, Olive-backed, Hermit, Robin, and Bluebird. Other species which awake to voice themselves but little before sunrise or after, cease to sing and call at sunset or a little later. Such are the Chimney Swift, the Crow, the Bobolink, the Purple Finch, the Goldfinch, the Indigo Bunting, the Cedar Waxwing, the Red-eyed Vireo, the Blue-headed Vireo, and the warblers in general. Habit in this respect seems to be adhered to as a law of the various species' being, from which they scarcely deviate. So not any of the earliest songsters of the morning cease to sing in the evening until some time after sunset, and several continue for almost an hour later. And on the other hand there are no species which awaken to sing late in the morning which continue to sing late in the evening. Those of the first group seem not to be dependent upon daylight for inspiration, but voice themselves in song in comparative darkness, while the others do seem to be dependent upon daylight and are silent except it be comparatively light.

Even-song is not extended as long after sunset as matins precede sunrise, since the earliest songs of ten species in the morning are given from an hour and five to twenty minutes before sunrising, while the latest ten songsters in the evening continue to sing only from twenty-four to forty-eight minutes after sunsetting. This

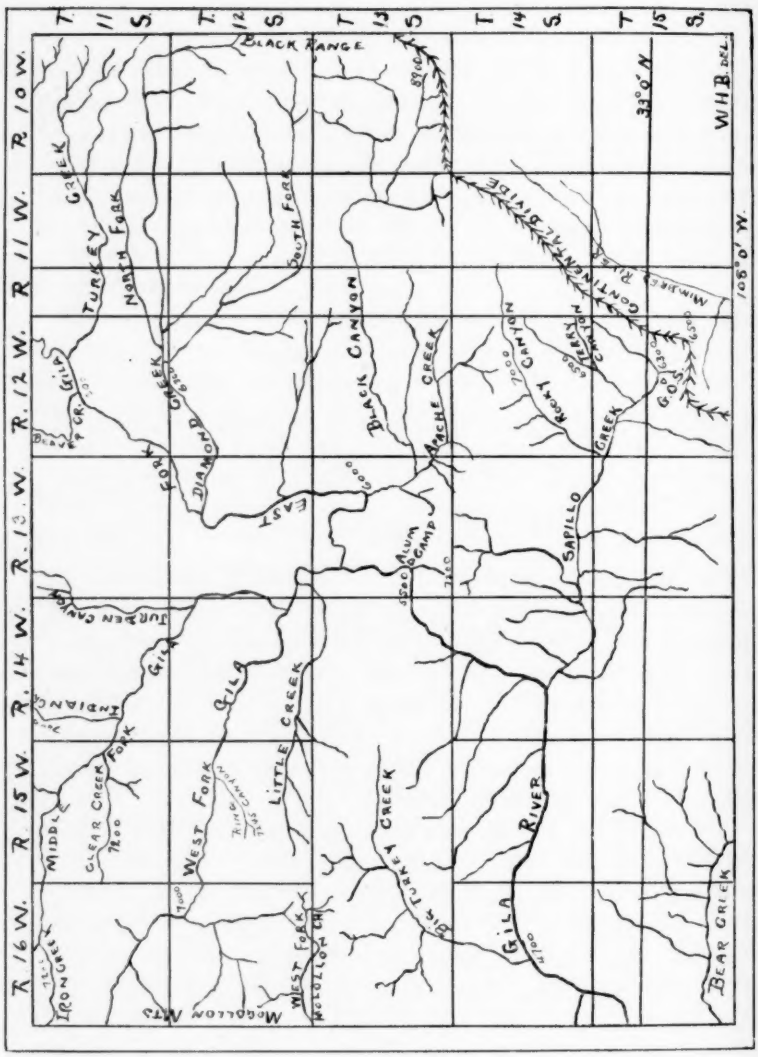
must be because even the birds grow weary by activity and become drowsy with overpowering sleep after the sun is withdrawn and even while a deep glow remains in the western sky delaying the darkness of night, while in the morning, refreshed by the night's sleep, these songsters respond to the first glimmer of dawn in the east by awakening to sing before any perceptible light has been diffused around, reinvigorated, buoyant, eager for the activities and joys of the new day.

OCTOBER BIRDS OF THE HEADWATERS OF THE GILA RIVER, NEW MEXICO.

BY W. H. BERGTOLD, M. D.

THE area in which the following records were made extends about forty-two miles east and west, and about thirty miles north and south: it is bounded on the east by the Black Range, which forms the continental divide, and too, the watershed between the Gila and the Rio Grande: on the south it is bounded by the Pinos Altos Mountains and their spurs, while to the north the area emerges in a mesa formation which, extending northward, terminates in the San Augustine Plains.

The Gila arises in this area from converging tributaries, runs westerly and leaves it near the southwest corner. As a whole, it is a wild and beautiful country, very sparsely settled, traversed by many streams, several of which are living throughout the entire year, and have eroded deep and picturesque canyons through which they now flow. Along these river bottoms, especially the main Gila, its three forks, Black Canyon, and Big Turkey Creek, there is a striking growth of cottonwood, sycamore, alder, walnut, boxelder, and ash, these trees being covered in many localities, by an abundance of wild grape and clematis vines, a growth which in the fall helps to paint a landscape of splendid color and striking effect.



MAP OF THE HEADWATERS OF THE GILA RIVER, NEW MEXICO.

The streams have carved the country into many rough hills and mountains, and, too, have left much mesa land between their canyons. The higher portions are well timbered with yellow pine (old and young growth), white pine, red and white spruce, and balsam fir, and with quaking aspen, the last especially in locations which have been fire swept. Lower down, and over more dry portions, there is a varyingly dense chaparral of juniper, piñon, scrub oak, and in those parts approaching desiccation, one finds mesquite, greasewood, and cactus.

The altitudes vary from 4700 feet at the junction of Big Turkey Creek and the Gila, to over 10,000 feet on Mogollon Mountain, and Black Range, where there are points nearly as high as on Mogollon.

The area is thus, east, south, and west, bounded by mountains of considerable height; the surface slopes rather gradually from the centre of the area to the higher margins, a condition preventing too rapid flow of precipitation to the lower levels, resulting in good forestation over a large portion of the country: Rixon [1] in his report on the forest conditions of the then "Gila Forest Reserve" (the area with which we are dealing forming nearly one third of this reserve) states that only about twenty-six per cent. of it is naturally timberless.

The region in its general characteristics and conditions, lends itself, as it were, to a variety of climates: in summer the lower portions approach closely the climate of southern Arizona, while at the same time the higher parts are almost alpine in nature; these two zones being separated by but a few miles, the area thereby forms a region of unusual zoological interest. It is highly probable that a thorough and systematic ornithological study of this area from one end of the year to the other would bring to light many points of considerable biological value.

The writer has visited, during October of each year since 1906, nearly all parts of the area under consideration, but he has been unable to do any extensive collecting, as these visits have always been by means of "pack outfits," and with no adequate facilities for preserving skins. Nevertheless they have made possible a

[1] Forest Conditions — Gila River, Forest Reserve, New Mexico. Theo. F. Rixon, Washington, 1905.

considerable list of birds collected or otherwise identified in the month mentioned: the list is of necessity incomplete, for it cannot include the large number of birds seen whose identity was suspected but not established beyond a reasonable doubt. This difficulty of identification is increased by the inherent peculiarities of the local bird fauna: many bird races overlap here and at times it is absolutely impossible to place a given bird in its subspecific niche without shooting it, which, during most of these trips, the writer was loath to do because he could not always preserve the skin.

Even with the skin in hand, there has been uncertainty as to the bird's exact relationship. A skin now in the writer's collection illustrates well the difficulties confronting him in recording the birds observed in this region, and too, the uncertainties which present themselves to present day bird taxonomists. It is that of a Junco, record No. 49 of the following list: the writer was quite uncertain as to the Junco race to which the bird belonged, and sent the skin, for identification, to two well known professional ornithologists. The first returned it saying, "It is impossible to state positively what the Junco is..... It is undoubtedly intermediate between typical *oreganus* and typical *shufeldti*, and, in my opinion, cannot be certainly referred to either"; and the second gentleman returned the skin with no comment but labelled, "*J. o. shufeldti*," under which identification it is here listed, not because this identification is of any greater value than the first, but as being the easiest way to untie the knot.

Another example, illustrating other difficulties one may meet in naming a species, is the skin of the bird recorded under No. 67 of this list; both of the above mentioned experts obviously agreed as to what it was, yet one called the bird "*Bœolophus wollweberi wollweberi* (= *B. annexus* Cassin)," and the second "*Penthestes wollweberi annexus*"![1]

It is with no captious feeling that the writer remarks on the increasing confusion and complexity of nomenclature in ornithological work, reflected by the above experiences. Ornithology is, with the writer, an avocation, not a vocation, and during the past

[1] It was to prevent such diversity as this, that the A. O. U. Check-List was published. The first expert identified the bird in accordance with the nomenclature of the List; the second according to his personal views, apparently without any explanation. [Ed.]

thirty years he has viewed with queer feelings the kaleidoscopic procession of names successively given to a species, the Robin, for example. It unquestionably is wise and correct to be guided by logical rules in such matters, and with this admission one may be permitted the hope that after a while *all* the older writings will have been unearthed, searched, and analyzed, and the exact priority as to a bird's name will have been determined.[1] Meanwhile, to one who loves the birds more when they are in the hills than when in the hand, and yet tries to add his mite to the grand total of ornithologic knowledge, the task of *trying* to remember the two or three more or less elusive and shifting scientific names of four hundred or more birds he may have become acquainted with during his lifetime, is hopeless — Ars longa, vita brevis.

Record No. 8, for obvious reasons, is made in the language of science.

It is a pleasure, as well as a duty, to here acknowledge with renewed thanks and appreciation, the unremitting kindness of Victor Culberson, Pres., J. B. Gilchrist, Treas., and R. F. Herndon, Secy., of the G. O. S. Cattle Co., without whose unfailing help these brief records could not have been made.

1. **Nettion carolinense**. GREEN-WINGED TEAL.— Four seen on a small reservoir in Terry Canyon, Oct. 7, 1906.

2. **Ardea h. herodias**. GREAT BLUE HERON.— Seen several times along the larger streams, the latest date being Oct. 24, 1911.

3. **Egretta c. candidissima**. SNOWY EGRET.— One taken Oct. 21, 1908, at the G. O. S. Ranch, previously recorded in Auk, January, 1909, p. 76.

4. **Actitis macularia**. SPOTTED SANDPIPER.— More or less common on the larger streams. Latest date, Oct. 16, 1909.

5. **Oxyechus vociferus**. KILLDEER.— Common on the larger streams. Latest date, Oct. 16, 1909.

6. **Lophortyx gambeli**. GAMBEL'S QUAIL. Common on the lower levels of the entire area.

7. **Cyrtonyx montezumæ mearnsi**.— Locally known as the "Fool Quail." Common all over the area.

8. **Meleagris gallopavo merriami**.— Multi greges parvi videbantur per totam regionem.

9. **Columba f. fasciata**. BAND-TAILED PIGEON.— Seen in moderate numbers each year, in various portions of the area: — none seen in 1907;

[1] *cf.* Notes and News, p. 431. [Ed.]

the latest date being Oct. 29, 1909, at the Alum Camp. Locally is called the "Passenger Pigeon," or the "Wild Pigeon."

10. **Zenaidura macroura carolinensis**. MOURNING DOVE.— Seen in very large numbers Oct. 22, and 23, 1907, at the mouth of Big Turkey Creek. One seen at Alum Camp, Oct. 28, 1909.

11. **Cathartes aura septentrionalis**. TURKEY VULTURE.— A few seen on Oct. 3, 1908, at the G. O. S. Ranch, and a considerable flock observed at the same place Oct. 6, 1911.

12. **Circus hudsonius**. MARSH HAWK.— A few seen at the G. O. S. Ranch each trip.

13. **Accipiter velox**. SHARP-SHINNED HAWK.— Several noticed at the G. O. S. Ranch during all of October, 1911.

14. **Buteo borealis calurus**. WESTERN RED-TAILED HAWK.— More less common all over the area, but not seen above 8000 feet.

15. **Aquila chrysaëtos**. GOLDEN EAGLE.— Seen once at the G. O. S. Ranch in 1906, and on Oct. 15, 1909, on Black Canyon.

16. **Falco sparverius phalæna**. DESERT SPARROW HAWK.— One seen Oct. 6, 1906, on the divide between the Mimbres River and Black Canyon, at an altitude of 8900 feet.

17. **Otus flammeolus flammeolus**. FLAMMULATED SCREECH OWL. — One noted on Iron Creek, Oct. 19, 1909.

18. **Bubo virginianus pallescens**. WESTERN HORNED OWL.— One collected at the G. O. S. Ranch, Oct., 1906, and many Horned Owls heard during every other trip, which were presumably of this race.

19. **Ceryle alcyon alcyon**. BELTED KINGFISHER.— Seen every year along the larger streams, in moderate numbers. Latest date, Oct. 16, 1909.

20. **Dryobates villosus leucothorectis**. WHITE-BREASTED WOODPECKER.— Many seen during each trip, all supposedly of this race. One taken Oct. 23, 1910, at the G. O. S. Ranch was so identified by an authority.

21. **Sphyrapicus varius nuchalis**. RED-NAPED SAPSUCKER.— One taken Oct. 19, 1910, at the G. O. S. Ranch.

22. **Sphyrapicus thyroideus**. WILLIAMSON'S SAPSUCKER.— One taken in Rocky Canyon, Oct., 1906, and on Oct. 10, 1909, at the G. O. S. Ranch.

23. **Melanerpes formicivorus formicivorus**. ANT-EATING WOODPECKER.— Common over the entire area.

24. **Asyndesmus lewisi**. LEWIS'S WOODPECKER.— One seen Oct. 24, 1908, at the G. O. S. Ranch, and one at the forking of Diamond Creek, Oct. 16, 1909.

25. **Colaptes cafer collaris**. RED-SHAFTED FLICKER.— Abundant over the entire area.

26. **Phalænoptilus nuttalli nitidus**. FROSTED POOR-WILL.— One seen at the G. O. S. Ranch Oct. 24, 1911, despite the fact that there had been severe frosts each of the preceding four nights, the days, however, being bright and warm.

27. **Sayornis sayus**. SAY'S PHŒBE.— Seen at the G. O. S. Ranch each October; latest date, Oct. 6, 1911.

28. **Cyanocitta stelleri diademata**. LONG-CRESTED JAY.— Abundant over the entire area.

29. **Aphelocoma woodhousei**. WOODHOUSE'S JAY.— Seen occasionally at the G. O. S. Ranch.

30. **Corvus cryptoleucus**. WHITE-NECKED RAVEN.— A few ravens seen occasionally in different parts of the area, which, presumably, were of this race.

31. **Corvus brachyrhynchos hesperis**. WESTERN CROW.— A small flock observed Oct. 16, 1909, at the confluence of Beaver Creek and the Gila.

32. **Nucifraga columbiana**. CLARK'S NUTCRACKER.— One seen Oct. 23, 1910, at the G. O. S. Ranch.

33. **Cyanocephalus cyanocephalus**. PIÑON JAY.— Abundant over the entire area, especially about the lower streams.

34. **Xanthocephalus xanthocephalus**. YELLOW-HEADED BLACKBIRD.— Two seen at the G. O. S. Ranch, Oct. 9, 1911.

35. **Agelaius phœniceus neutralis**. SAN DIEGO RED-WING.— Redwings in flocks about the G. O. S. Ranch, presumably of this race, all of each October.

36. **Sturnella neglecta**. WESTERN MEADOWLARK.— One seen Oct. 13, 1908, on Indian Creek, and one in Ring Canyon, Oct. 20, 1908.

37. **Euphagus cyanocephalus**. BREWER'S BLACKBIRD.— In flocks each year at the G. O. S. Ranch, and immediate vicinity. Latest date, Oct. 27, 1907.

38. **Pinicola enucleator montana**. ROCKY MOUNTAIN PINE GROSBEAK.— Observed frequently all over the area, above 7000 feet, in Oct., 1907, and a few seen on Iron Creek, Oct. 20, and at the head of Rocky Canyon, Oct. 14, 1909.

39. **Carpodacus mexicanus frontalis**. HOUSE FINCH.— Noticed at the G. O. S. Ranch, Oct. 10, 1909, and Oct. 21 and 23, 1910.

40. **Loxia curvirostra stricklandi**. MEXICAN CROSSBILL.— Seen in moderate numbers all over the area, each October, above 7000 feet.

41. **Astragalinus tristis pallidus**. PALE GOLDFINCH.— One seen at the G. O. S. Ranch, Oct. 3, 1911.

42. **Astragalinus psaltria psaltria**. ARKANSAS GOLDFINCH.— Noted the G. O. S. Ranch, Oct. 27, 1908.

43. **Spinus pinus**. PINE SISKIN.— A small flock seen at the G. O. S. Ranch, Oct. 8, 1908.

44. **Pocœcetes gramineus confinis**. WESTERN VESPER SPARROW. — One taken at the G. O. S. Ranch, Oct. 3, 1911.

45. **Zonotrichia leucophrys gambeli**. GAMBEL'S SPARROW.— Seen in large numbers at the Alum Camp, Oct. 6, 1907, and Oct. 21, 1908, and at the G. O. S. Ranch, Oct. 8, 1911.

46. **Zonotrichia coronata**. GOLDEN-CROWNED SPARROW.— One taken at the G. O. S. Ranch Oct. 8, 1911, and more noted at the same place all of the succeeding week.

47. **Spizella passerina arizonæ.** WESTERN CHIPPING SPARROW.— Several seen at the G. O. S. Ranch, Oct. 8, 1911.

48. **Passer domesticus.** ENGLISH SPARROW.— The local occurrence of this exotic furnishes a typical example of its advent and spread in a new location. There were none about the G. O. S. Ranch in October of 1906, 1907, or 1908, although it was common at Silver City (air line about 20 miles southwest) between which city and the Ranch, tower the Pinos Altos Mountains; and there were a few at the same time at Fort Bayard. In October, 1909, the writer saw a flock of eight at the G. O. S. Ranch (the first ever seen there): all but one of this flock were killed. In October, 1910, there was a larger flock at the G. O. S. Ranch, and in addition, the species was detected at the Lower G. O. S. Ranch, situate about nine (9) miles down the Sapello Creek. As many of these birds as possible were killed at this time. In October, 1911, there were a great many more seen at the G. O. S. Ranch, and the writer felt then that the species had succeeded in firmly establishing itself in the Sapello Valley. Fort Bayard is, in an air line, about fourteen (14) miles southerly from the G. O S. Ranch, and there is a spur of the Pinos Altos Mountains intervening, the spur having an altitude of about 7700 feet — (there being 1600 feet difference in altitude between Fort Bayard and the top of this spur). It is doubtful that this sparrow would deliberately venture, in one effort, over this height and distance, since it would have to do so in a single stage, as it were, because there are practically no houses in the stretch of country between the two points. It is also somewhat improbable that the bird spread northwesterly from Silver City to the Gila, thence up the stream to the Sapello, and to the G. O. S. Ranch, as this would necessitate its going over territory practically uninhabited. The fact that it was detected at the G. O. S. Ranch before being noted at the Lower G. O. S. Ranch also militates against this idea. The most reasonable route by which the species probably spread is from Fort Bayard to Fierro, thence to the Mimbres River and across the Mimbres-Sapello Divide (altitude 6500 feet), and down the Sapello. An alternate route would be from Fort Bayard to Santa Rita, to Georgetown, the Mimbres Valley, and thence, as before, up the Mimbres. Both of these ways provide, all along, a number of farms, etc., at no excessive intervals, a condition which confessedly facilitates the spread of this bird. Yet the writer is by no means convinced that it did not come directly over the Pinos Altos Mountains, or its Eastern spurs, from the town of Pinos Altos (air line = 12 miles), or Fort Bayard (air line = 14 miles), or Fierro (air line = 10 miles), to the G. O. S. Ranch. The melancholy fact remains that this pest seems to have fixed itself permanently in the Sapello Valley.

49. **Junco hyemalis connectens.** SHUFELDT'S JUNCO.— One taken at the G. O. S. Ranch, Oct. 9, 1910.

50. **Junco hyemalis mearnsi.** PINK-SIDED JUNCO.— Many seen on each trip over all the region. Earliest date, Oct. 16, 1907, and the latest date, Oct. 21, 1907.

51. **Junco hyemalis annectens**. RIDGWAY'S JUNCO.— A number seen at the G. O. S. Ranch, Oct. 13, 1907.

52. **Junco phæonotus dorsalis**. RED-BACKED JUNCO.— Seen in considerable numbers over the entire area, each trip. Earliest date, Oct. 5, 1908, and the latest, Oct. 17, 1908.

53. **Amphispiza nevadensis nevadensis**. SAGE SPARROW.— One taken at the G. O. S. Ranch, Oct. 7, 1911.

54. **Pipilo maculatus montanus**. SPURRED TOWHEE.— One taken at the G. O. S. Ranch, Oct. 7, 1911.

55. **Pipilo fuscus mesoleucus**. CAÑON TOWHEE.— Common at the G. O. S. Ranch each October. Latest record, Oct. 29, 1907.

56. **Oreospiza chlorura.** GREEN-TAILED TOWHEE.— Noted at the G. O. S. Ranch, Oct. 22, 1910.

57. **Petrochelidon lunifrons lunifrons**. CLIFF SWALLOW.— Seen at the junction of Beaver Creek and the Gila, Oct. 16, 1909.

58. **Hirundo erythrogastra**. BARN SWALLOW.— Noted at the G. O. S. Ranch, Oct. 13, 1907.

59. **Dendroica auduboni auduboni**. AUDUBON'S WARBLER.— Noted at the G. O. S. Ranch, Oct. 22, 1910, and Oct. 8, 1911.

60. **Cinclus mexicanus unicolor**. WATER OUSEL.— A pair seen Oct. 16, 1908, on the upper reaches of the West Fork of the Gila, and one seen Oct. 19, 1909, at the junction of the Middle Fork of the Gila and Iron Creek.

61. **Salpinctus obsoletus obsoletus**. ROCK WREN.— Seen each trip along the larger streams, the latest on Black Canyon, Oct. 15, 1909.

62. **Catherpes mexicanus conspersus**. CAÑON WREN.— One taken on the West Fork of the Gila, Oct. 27, 1909.

63. **Certhia familiaris montana**. ROCKY MOUNTAIN CREEPER.— Seen in 1906, and in 1910, in various localities in the area, latest date being Oct. 19, 1910.

64. **Sitta carolinensis nelsoni**. ROCKY MOUNTAIN NUTHATCH.— Common throughout the entire area.

65. **Sitta canadensis**. RED-BREASTED NUTHATCH.— One taken at the G. O. S. Ranch, Oct. 19, 1910.

66. **Sitta pygmæa pygmæa**. PYGMY NUTHATCH.— Seen over the area in all parts visited, throughout the entire month of October.

67. **Bæolophus wollweberi**. BRIDLED TITMOUSE.— One taken at the G. O. S. Ranch, Oct. 19, 1910.

68. **Penthestes gambeli gambeli**. MOUNTAIN CHICKADEE.— Common over the entire area.

69. **Regulus calendula calendula**. RUBY-CROWNED KINGLET.— One taken in Black Range, Oct. 5, 1909, on head of Black Canyon.

70. **Polioptila cærulea obscura.** WESTERN GNATCATCHER.— A small flock seen Oct. 29, 1909, on Sapello-Gila Divide just above Alum Camp.

71. **Myadestes townsendi**. TOWNSEND'S SOLITAIRE.— One seen on Clear Creek, Oct. 21, 1909.

72. **Hylocichla guttata auduboni**. AUDUBON'S HERMIT THRUSH.— Two taken in Rocky Canyon, Oct. 11, 1906.

73. **Hylocichla guttata nanus**. DWARF HERMIT THRUSH.— One taken on the Mimbres — Black Canyon Divide, Oct. 5, 1908.

74. **Planesticus migratorius propinquus.** WESTERN ROBIN.— Common over all the area, but not noted above 8000 feet.

75. **Sialia mexicana bairdi**. CHESTNUT-BACKED BLUEBIRD.— A number seen at the Alum Camp Oct. 16, 1907.

76. **Sialia currucoides**. MOUNTAIN BLUEBIRD.— Common over all the area, latest date being Oct. 17, 1908.

THE HAWAIIAN LINNET, *CARPODACUS MUTANS* GRINNELL.

BY JOHN C. PHILLIPS.

IN 'The Auk' for June, 1912, Mr. Grinnell gives a new name to the introduced linnet of the Hawaiian Isles. I propose to discuss briefly both the name itself and the specific value of the form named.

In the first place, the word itself, *mutans*, implies a very definite condition, namely, a sudden germinal variation expressed in the soma as a Mendelian dominant, dominant because it is not possible to conceive of a recessive character, getting the upper hand in the wild unless it is of marked selectional value.

The word mutation means "the act or process of changing" but in the biological sense which it has had since the time of de Vries, a very definite meaning has been given to it, often theoretical perhaps, but nevertheless quite clear. Unfortunately the word has been misapplied to little understood types of variation,— for instance, to rare Mendelian combinations, to the loss of one or more characters from the germ cells, to the products of disease, etc., etc.

The name *Carpodacus mutans*, then, would imply that the following experimental conditions must hold. First the new form must breed true, or as true as the old, even when taken back to its original continental range. Second, in crosses with typical orange

birds of ancestral stocks, it must behave as a dominant, or at least as a partial dominant. Neither of the above premises is likely to hold good.

Now as to the value of these imported Hawaiian Linnets in a racial sense. Mr. Grinnell discusses the change in caged Linnets (University of Cal. Pub., Vol. 7, p. 179) and shows that yellow birds result from red, after a short period of confinement. This appears to be a well known fact with various red birds. The case of the European Linnet is mentioned by Finn in the Avicultural Magazine for June, 1906. Mr. Bangs informs me of like cases from his own experience with Crossbills, Redpolls and Purple Finches and with a Cardinal in confinement. The Cardinal did not go so far off color as the Crossbills. The so-called Japanese Robin (*Liothrix luteus*) which is brilliantly colored on the chest, throat, and primaries with orange and scarlet-vermilion, turns more or less olivaceous all over after a few moults according to Mr. Bang's experience. We have all seen the dirty white color which American Flamingoes take on in zoölogical gardens.

Is it not thus highly probable, as Mr. Grinnell himself has suggested, that a diminished tyrosine oxidation is responsible for both the caged and the Hawaiian birds. The general environmental complex of the Hawaiian Islands is an intricate problem, but the fact that other American insular areas, Guadalupe and San Benito Islands, show a rather high percentage of yellow or orange birds is suggestive as Mr. Grinnell says of some special insular effects. The occurrence of *some* yellow or orange birds (percent hard to estimate for reasons given Mr. Grinnell on p. 182) in the normal habitat of the species, shows that its color elaborator is in a state of delicate adjustment, that is, it is not always allowed to continue its action up to the ultimate crimson color. We can well imagine, then, that a very slight diminution in the activity of the enzyme might produce the observed results in Hawaii, and might not these results be of entirely extrinsic origin? It is certainly easier to apply a theory of this sort than to hunt about for a deeper one.

On page 184 Mr. Grinnell calls attention to the fact that eight or ten years ago there were many red or crimson linnets in the islands. The data upon which this suggestion is founded are not quite

sufficient for the purpose, but if this is so there has been a change since that time, and the case is a very curious one.

In the Museum of Comparative Zoölogy there is a series of twelve male and six female Linnets collected by Flood Bros. on Molokai in 1895 fifteen years before Mr. Grinnell's series was taken by Miss Alexander on Molokai, Oahu and Maui. This series shows (provided it was taken at random) that the species was at that time nowhere near stability, and that there was almost as great a range of color as in birds from Arizona and other parts of the southwest, only the average color is of a much lighter shade. Three of the males are poppy red to orange vermilion (Ridgway's Manual of Colors, 1886), three of them are orange to orange vermilion, five are orange to cadmium-orange, and one is pure cadmium yellow. In most of these birds the feathers are of mixed tints, that is, at least two colors occur on one bird. Most of these birds, then, are well off color. There is no individual of the deep crimson type. As a whole this series does not differ very markedly from Mr. Grinnell's as far as one can judge without comparison. The colors, being so subtle and mixed are not easily described.

In the last paragraph of his paper Mr. Grinnell says that at the present time "to assert emphatically any particular factor or group of factors as the prime stimulus does not seem justifiable." The name however, *C. mutans*, does assert or at least imply a definite variation of an intrinsic, or germinal nature. The question as to whether this slight alteration in a character already unstable is deserving of special recognition in our nomenclature is an open one, and certainly not for the writer to decide. It was the name itself which first appeared to him as inappropriate.

THE INTRODUCTION AND ACCLIMATIZATION OF THE YELLOW CANARY ON MIDWAY ISLAND.

BY WILLIAM ALANSON BRYAN.

WE are accustomed to look on the common Yellow Canary (*Fringilla canaria*) and the numerous varieties that have been artificially produced from it as a cage bird pure and simple. It is the belief of many that through centuries of confinement and domestication they have lost the power to sustaining themselves should they be given their liberty and forced to shift for themselves in the open. It is urged that through hundreds of generations they have become so modified and adapted to cage environment that liberty means nothing to them and that they must perish miserably before they would be able to adapt themselves to the conditions existing in the larger and freer world of which they see and know so little.

It is a matter of considerable satisfaction therefore to be able to lay before the readers of 'The Auk' some of the facts kindly supplied me by Mr. D. Morrison, through the courtesy of Captain Piltz touching on the liberation and subsequent acclimatization and establishment of a colony of yellow canaries on the little low isolated island of Midway.

For the benefit of those who may never have heard of Midway, it may be well to state that the Hawaiian group as a matter of convenience has been divided into the Windward or inhabited islands and the Leeward or uninhabited chain. Midway belongs to this latter division of the group and save Ocean Island, it is the farthest removed from Oahu of the list of small low islands that stretch away from Honolulu towards Japan in a northwesterly direction. It is something over 1000 miles distant from Honolulu and as its name implies it is near the geographical center of the North Pacific for which reason it is now used as a relay station for the Commercial Pacific Cable Company's wire across this great ocean.

As a matter of fact Midway is made up of two small patches of sand known as Eastern and Sand Islands. These islets are sur-

rounded by a narrow circular reef six miles in diameter. Sand, the larger of the two, is now occupied by the cable station and the comfortable quarters established by the company. The buildings are surrounded by a number of introduced trees and shrubs, but at the time of my visit in 1902, an account of which I have elsewhere published,[1] it was an uninhabited shimmering white pile of sand on which during my short stay I was able to collect only six species of littoral plants. From the nearby Eastern islet I was able to secure ten species of grasses, vines and low growing shrubs, — species that are common on the coral islands in the group.

For the ornithologist, interest ordinarily centers about the great colony of countless thousands of sea birds that represent the dozen or more species making the island their home. But for the present we are especially concerned with the birds that have been introduced on Midway and particularly with the establishment of the Yellow Canary there. I therefore quote from the letter written me December 15th, 1911, by Mr. D. Morrison who for a number of years has been the superintendent in charge on the island in reply to my request for the data concerning the acclimatization of the "Song-birds" on Midway.

"I assure you that it is a pleasure to learn of your interest in the matter and I am only too willing to furnish you with the particulars which you are at liberty to make whatever use of you wish.

"YELLOW CANARIES (called by us Canton Canaries): — In March, 1909, I purchased a pair of these birds from the crew of the S. S. Siberia in Honolulu harbour. They had a number of them in the forecastle which were to be sold for whatever they would bring upon arrival at San Francisco. I brought them to Midway Island in separate cages at the end of the same month. They were put together in a breeding cage in January 1910 and the female started with five eggs none of which hatched out.

"A month later she laid seven eggs out of which six healthy birds were hatched.

"In April she laid six eggs and hatched out four birds.

"Some weeks later seven eggs were laid none of which hatched out.

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[1] Report of a Visit to Midway Island by Wm. Alanson Bryan. Occas. Papers B. P. Bishop Mus., Vol. II, No. 4, pp. 37–45.

"These eleven young birds were kept in large cages until July of the same year on account of a number of very troublesome cats which were living in a wild state amongst the shrubbery. They were wary and extremely difficult to kill. One of our Chinese servants devised a large frame trap of chicken netting, with partitioned compartments (parlour and bedroom we called it) with a drop door at each end attached by string to the bait. This was successful and in May, 1910, we were sure that there were no cats left on the Island.

"In July two male canaries were sent me from Honolulu and these along with the eleven young birds which we had raised here were liberated. For a time the young birds would return to the doors at night to be taken in but they quickly became accustomed to their liberty.

"In December they began nesting. One built in a slender and very exposed Australian Ironwood tree (introduced) close to the buildings and hatched out three healthy looking birds but they perished during a gale with a very low temperature on the night of January 13th, 1911, and the nest was abandoned. Shortly afterwards we discovered that well sheltered nests were being built in the heart of clumps of "Marianne" grass and young birds soon made their appearance at the feed boxes which we have attached to veranda railings. New batches came at intervals up to the month of August.

"We estimate the offspring for the season to be about 60, and at the present time (December, 1911) mating has begun, and with fairly favourable weather conditions we have every reason to expect a large increase during this season.

"They are beautiful songsters and most attractive, and although not quite so friendly as the Laysan Finch (*Telespiza cantans*) they will feed with a person standing within a yard of them. During the spring of 1911 the original pair were put together but from several batches of eggs no birds were obtained.

"THE LAYSAN FINCH": In May, 1905, I happened to be at Laysan Island on the "Iroquois" and procured from Mr. Max Sclemmer a cage of these birds. They were liberated upon arrival here but were only seen around the buildings for a week or two. Another cage of these birds was secured at Laysan by Capt. Piltz and sent here to Mrs. Colley in September of the same year (1905). They

were liberated on Eastern Island, as we believed it useless to try to domesticate them here on account of the cats. They increased rapidly over there and in January, 1910, we brought over a number of them as well as a large cage full of "Wingless" birds (*Prozanula palmeri*), but still having cats with us I fear a good many of this importation was destroyed. In May another lot of Finches and Wingless birds was taken over and both of these have increased remarkably and have been found most useful in keeping vegetation free from destructive caterpillers.

"You are more familiar with the history of the Laysan birds than I am and probably known how the Finch and Wingless bird were introduced there. I have heard that Captain Walker's crew brought Wingless birds from Laysan to Eastern Island in 1887. But the canaries and Finches were established on this island as herein related. They appear to be finding a good deal of food amongst the vegetation which has recently been established over the north end of the Island, but we still continue to keep the feed boxes well filled with mixed bird seed, and to distribute dishes with fresh water around the verandas. The yellow birds enjoy their daily bath but the Laysan Finch does not bathe.

"I shall be glad to furnish you with any further particulars regarding the birds or their progress at any time.

"Yours very truly,

"D. MORRISON,

"Superintendent, Midway."

Under date of March 11th, Mr. Morrison again writes me from Midway that he is exporting to New York on that date fourteen young Canaries of this season's hatch, two of the 1911 hatch, and the male of the original pair that was carried to Midway in 1909. The female bird of the parent stock is still retained on the island. The young birds were all hatched in the open but the old male bird had never been at liberty.

With these facts before us I venture to say that the future of this colony of Yellow Canaries will be followed by those who are interested in the introduction and naturalization of song and game birds since it furnishes an excellent example of a species returning to its natural wild habits in an unhospitable environment after centuries of confinement and artificial breeding and feeding.

EARLY RECORDS OF THE CAROLINA PAROQUET.

BY ALBERT HAZEN WRIGHT.

ALMOST our only ornithologic sources of the earlier times in North America are historical annals, quaint narratives of exploration, and travellers' sketches. In those days, the number of *real* naturalists may have been many, yet they seldom recorded their observations in scientific form; and our resident scientists were few. Hence, if we would form any idea of the primitive conditions and species, we must perforce use what we have at hand, however diverse our respective evaluations of their trustworthiness. The average biologist, as he reads early North American travels, cannot but marvel at the intense interest of our predecessors in birds, now rare, near-extinct or extinct. The flocking of the Passenger Pigeon, the size and flavor of the Wild Turkey, the gorgeous plumage and surprising northern range of the Carolina Paroquet, or equally peculiar characters or habits of other forms, now fast disappearing, were in such bold relief, so obvious and so patent as to attract the attention of any layman whatever his mission.

Probably none of these forms caused more genuine amazement than the Paroquet (*Conuropsis carolinensis*), particularly in the northern limits of its range. Of its previous distribution, Hasbrouck in his monograph of this form says,[1] "we find that of the forty-four States and five Territories comprising our country, there are records of the occurrence of this species in twenty-two States and one Territory, over which it formerly ranged. If we take the forty-third parallel as the northern limit, the twenty-sixth as the most southern, the seventy-third and one hundred and sixth meridians as the eastern and western boundaries respectively, we will have included very nearly all the country in which the Paroquet formerly lived." In his introductory remarks he notes that "For many years it has been a recognized fact that the Carolina Paroquet (*Conurus carolinensis*) is fast approaching extermination, the last quarter of a century having witnessed such rapid diminution in its numbers and so great a restriction in its range that, 'in the opinion

[1] 'The Auk', Vol. VIII, No. 4, Oct., 1891, pp. 371, 369.

of the best judges, twenty years hence it will be known only in history and from museum specimens.'" Has the prophecy been fulfilled? Just previous to this communication (1888–1889) Chapman records [1] it in Eastern Florida, and reports more or less authentic indicate its presence in Oklahoma. Two years later (1891) Merriam gives [2] an isolated record of it in Southern Missouri, and Wayne [3] and Scott [4] record it from North and South Florida respectively. The last apparent notice of this form in the flesh is that of Chapman [5] for 1904 when he finds it still present about Lake Okeechabee, Florida.

In this state, the first records begin in 1587, when Laudonniere in "The Description of the West Indies in generall, but chiefly and particularly of Florida" says,[6] "The foules are Turkeycocks, Partridges, Parrots ....." Four years preceding (1583), Sir George Peckham in "A true Report of the late discoveries — of the Newfound Lands, By that valiant and worthy Gentleman Sir Humfrey Gilbert," holds that explorers in North America [7] "doe testifie that they have found in those countryes ....; Parrots." About the same time (1587), Thomas Hariot in speaking "Of Foule" of Virginia, writes,[8] "There are also Parrots ...., which although with us they be not used for meat, yet for other causes I thought good to mention." The final note of the sixteenth century comes in Daniel Coxe's Carolana (Louisiana). He sent his first expedition up the Mississippi in 1598. He finds [9] "great companies of turkeys,.... parrots, and many other sorts of curious birds differing from ours."

The roll of records for the seventeenth century begins with Captain John Smith who finds (1607–1609) in Virginia that [10] "In

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[1] Proc. Linnaean Soc. of New York, 1890, pp. 4–6.
[2] 'The Auk', Vol. IX, p. 301.
[3] ibid., Vol. XII, p. 367.
[4] ibid., IX, p. 218.
[5] Bird-Lore, Vol. VI, No. 3, June 1, 1904, p. 103.
[6] Hakluyt, Richard. The Principal Navigations, Voyages, Traffiques and Discoveries of the English Nation. Hakluyt Soc. Extra Series, Vol. XVIII, p. 451. Glasgow, 1904.
[7] ibid., p. 115.
[8] ibid., pp. 369, 370.
[9] Hist. Colls. of Louisiana. By B. F. French. Part II, Phila., 1850, p. 261.
[10] Smith, Capt. John, etc., Works of, 1608–1631. Edited by Edward Arber, 1884, p. 60.

Winter there are great plenty of .... Parrats,....". About the same time Wm. Strachey's curious "Histoire of Travaile into Virginia" (1610?–1612?) appears. Of the "Parakitoes," he writes,[1] "I have seene manie in the winter, and knowe divers killed, yet be they a fowle most swift of wing, their winges and breasts are of a greenish cullour, with forked tayles, their heads, some crymsen, some yellowe, some orange-tawny, very beautifull. Some of our colonie who have seene of the East Indian parratts, affirme how they are like to that kynd, which hath given us somewhat the more hope of the nerenes of the South Sea, these parratts, by all probability, like enough to come from some of the countryes upon that sea." In 1615, Ralph Hamor in the same region observes[2] "in winter about Christmas many flocks of *Parakertoths*."

The same year, 1615, Champlain, when just north of Lake Ontario,[3] "lost (his) way in the woods, having followed a certain bird that seemed to (him) peculiar. It had a beak like that of a parrot, and was of the size of a hen. It was entirely yellow except the head which was red, and the wings which were blue, and it flew by intervals like a partridge. The desire to kill it led (him) to pursue it from tree to tree for a very long time, until it flew away in good earnest," — a description which might suggest the paroquet. It is much later, 1649, in "A Perfect Description of Virginia" that "Parrots" next appear.[4] The Jesuit Relations yield four short notes. The Relations of 1661–62 in speaking of Kentucky or Tennessee, observe that in the fruit trees,[5] "birds of all colors and of every note, especially little Paroquets, which are so numerous that we have seen some of our Iroquois return from those countries with scarfs and belts which they had made from these birds by a process of interweaving," Some ten years later (1673) Dablon finds, on the lower Mississippi, that[6] "Parroquets fly in flocks of 10 to 12." Finally, the "Voyages du P. Jacques Mar-

[1] Hakluyt Soc., London, 1849, p. 126.
[2] Hamor, Ralph. A True Discourse of the Present Estate of Virginia, etc. London, 1615. Reprint, Richmond, 1860, p. 21.
[3] Champlain, Voyages of, 1611–1618. Vol. 3. Prince Soc. Publications, Vol. 13, 1882, p. 140.
[4] Mass. Hist. Soc. Coll. Second Ser., Vol. IX, 1822, p. 121.
[5] Jesuit Relations and Allied Documents. By R. G. Thwaites and others, 1896, Vol. 47, p. 147.
[6] Ibid., Vol. 58, p. 99.

quette" (1673–1677) mentions this form in two places. Of his experiences on the Mississippi near the mouth of St. Francis River in Arkansas, we read,[1] "We killed a little parroquet, one half of whose head was red, The other half and The neck yellow, and The whole body green." The other quotation speaks of the Mississippi at the 38th degree of latitude.[4] "We have seen nothing like this river that we enter, as regards its fertility of soil, its prairies and woods; its .... parroquets, ..."

In 1663 some "Commissioners sent from Barbodes to explore the River Cape Fear," report,[2] "in the woods, great flocks of paroquitos," as does William Hilton in the same region the succeeding year (1664). He writes that[3] "in that time as our business called us up and down the River and Branches, we kill'd....three dozen of Parrakeeto's." About 1677, Rev. Andrew White in "A Relation of the Colony of Lord Baron of Baltimore, in Maryland, near Virginia, etc." records,[4] that "During the winter ... abounds in....parrots, and many others unknown to our parts of the world." Five years later (1682) both Samuel Wilson and T. Ashe note this species in Carolina. The former says,[5] "Here are also in the woods, great plenty of....Paraquetos"; the latter finds the[5] "Birds for Food, and pleasure of Game, are.... and Parakeittoes." Two years before the end of the century, L. Hennepin when at the Head of the Illinois River, observes,[6] "Parrots" "in that country," and then again along the Mississippi where[6] "The Country affords all sorts of Game, as....Parrots, ..."

In the eighteenth century the number of records exceeds those of the two preceding centuries combined. Almost at its beginning (1702), Holm in "A Short Description of the Province of New Sweden," notes,[7] "Parrats." In 1714 the celebrated Lawson

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[1] ibid., Vol. 59, pp. 149–151, 161.

[2] Hawks, Francis L. History of North Carolina. Fayetteville, N. C., Vol. II, 1858, p. 31.

[3] Hilton, Wm. A Relation of a Discovery lately made on the coast of Florida, etc. Force, Peter. Tracts and Other Papers. Wash., D. C., Vol. IV, 1846, p. 15.

[4] Force, Peter. ibid., Vol. IV, 1846, p. 7.

[5] Carroll, B. R. Hist. Colls. S. C. New York, 1836, Vol. II, pp. 28, 73.

[6] Hennepin, L. A New Discovery of a Vast Country in America. London, 1698, pp. 93, 94.

[7] Mem. Hist. Soc. Penn., Vol. III, p. 41 (Part I).

speaks of this form in three different places. In the first place he gives the statement of Hilton (1664) above; the second is to include it in his list of "Birds of Carolina"; and the last note characterizes it as follows:[1] "The parrakeetos are of a green color, and orange colored half way their head. Of these and the alligators, there is none found to the northward of this province. They visit us first when mulberries are ripe, which fruit they love extremely. They peck the apples to eat the kernels, so that the fruit rots and perishes. They are mischievous to orchards. They are often taken alive and will become familiar and tame in two days. They have their nests in hollow trees, in low swampy ground. They devour the birch buds in April, and lie hidden when the weather is frosty and hard."

Following Lawson comes William Byrd who discusses (1729) it in connection with apple growing[2] "The Truth is, there is one Inconvenience that easily discourages lazy People from making This improvement: very often, in Autumn, when the Apples begin to ripen, they are visited with numerous flight of paraqueets, that bite all the Fruit to pieces in a moment for the sake of the kernels. The Havock they make is Sometimes so great, that whole Orchards are laid waste in Spite of all the Noises that can be made, or Mawkins that can be dresst up, to fright 'em away. These Ravenous Birds visit North Carolina only during the warm Season, and so soon as the Cold begins to come on, retire back towards the Sun. They rarely Venture so far north as Virginia, except in a very hot Summer, when they visit the most Southern Parts of it. They are very Beautiful; but like some other pretty Creatures, are apt to be loud and mischievous." In 1734 Mr. Commissary Von Reck, who "conducted the First Transport of Saltzburgers to Georgia," writes (Apr. 22) that when at Ebenezeer on Savannah River,[3] "Parrots and Partridges make us here a very good Dish." In the "History and General Description of New France" 1744, Charlevoix merely mentions[4] "Parrots" in Florida.

[1] Lawson, John. The History of Carolina, etc. London, 1714. Reprinted, Raleigh, 1860, pp. 125, 222, 234.

[2] Byrd, William. History of the Dividing Line and Other Tracts. Richmond, 1866, Vol. I, p. 58.

[3] Force, Peter. ibid., p. 12.

[4] Shea, J. G. Translation of. New York, 1866, Vol. I, p. 140.

In another quarter (Louisiana), the memoirs of M. Dumont (1753) finds[1] "The parroquets are very common . . . ., where they are about the size of a pigeon and of one color decidedly green. The head is very large, and the beak is like all the other birds of their sort, except it is bordered on both sides entirely to the top of the head by a sort of bow of yellowish color mixed with a little very brilliant red plume, less red in the females than the males. These birds fly ordinarily in flocks of eighteen or twenty; and when they pass in rapid flight, they utter screams loud enough to deafen the ears. When they are shot and eaten, the flesh is dark. When they are eating the seed of those *appe mace* of which I have spoken and of which I have said that they are very fond, if after having killed them one gives the refuse to cats, it kills them. "In the Ohio River region, John Jennings in his "Journal from Fort Pitt to Fort Chartes in the Illinois Country"[2] on March 13, 1766, "saw several Parrotkites" at Little Tottery Creek; the day following at Scioto River, "saw some parotkites"; on great Mineami River, "saw several flocks of Parrotkites"; and lastly, on the Mississippi just above the Ohio River's mouth, recorded the same. In 1766–1768 Carver finds[3] "Parrots" in the interior parts of North America. In 1772–1773 Rev. David Jones says[4] that as you approach the Ohio River region from the east, "after you go near the Great Kanawha, large flocks of small green parrots are to be seen."

"The Parroquet of Louisiana," M. LePage DuPratz thinks[5] "is not quite so large as those that are usually brought to France. Its plumage is usually of a fine sea-green, with a pale rose-coloured spot upon the crown, which brightens into red towards the beak, and fades off into green towards the body. It is, with difficulty that it learns to speak, and even then it rarely practices it, resembling in this the natives themselves, who speak little. As a silent parrot would never make its fortune among our French

[1] Memoires Historiques Sur La Louisiane. Paris, 1753. Tome Premier. p. 87.
[2] Penn. Mag. of Hist. and Biography. Vol. 31, 1907, pp. 146, 147, 148, 152.
[3] Carver, J. Travels through the Interior Parts of North America, in the Years 1766, 1767, and 1768. London, 1778, p. 466.
[4] Jones, Horatio G. Journal of Rev. David Jones. In Cincinnati Miscellany, by Chas. Cist. Vol. II, p. 232.
[5] DuPratz, M. Le Page. The History of Louisiana. London edit. 1774, p. 278.

ladies, it is doubtless on this account that we see so few of these in France." Following DuPratz, are three short notices. In 1776, "The History of North America" (London, 1776, p. 251), "With regard to the winged species" of Florida, remarks, "Here are vast numbers of...., parrots,....In his Notes written in 1781, Jefferson merely mentions[1] "*Psittacus Carolinensis.* The Parrot of Carolina. Perroquet." in one place; in the other, it is only incidentally that he speaks of it. In speaking of the climate of the Mississippi valley, he says,[1] "if we may believe travellers, it becomes warmer there than it is in the same latitude on the sea side. Their testimony is strengthened by the vegetables and animals which subsist and multiply there naturally, and do not on our coast..... Perroquets even winter on the Sciota, in the 39th degree of latitude." Three years later, 1784, John Filson just notes[2] "the perroquet, a bird every way resembling a parrot but much smaller";

In 1791, William Bartram writes of it at considerable length. While speaking of *Cupressus disticha* (Cypress), he says,[3] "Paroquets are commonly seen hovering and fluttering on their tops: they delight to shell the balls, its seed being their favorite food." In his list of birds, he gives "Psittacus Caroliniensis, the parrot of Carolina or parrakeet." "These are natives of Carolina and Florida where they breed and continue the year round." "The parakeet (psiticus caroliniensis) never reach so far North as Pennsylvania, which to me is unaccountable, considering they are a bird of such singular rapid flight, they could easily perform the journey in ten or twelve hours from North Carolina, where they are very numerous, and we abound with all the fruits which they delight in."

"I was assured in Carolina, that these birds, for a month or two in the coldest winter weather, house themselves in hollow Cypress trees, clinging fast to each other like bees in a hive, where they continue in a torpid state until the warmth of the returning spring reanimates them, when they issue forth from their late dark, cold

[1] Jefferson, Thomas. Notes of the State of Virginia, 1825, p. 97, 107.
[2] Filson, John. The Discovery, Settlement and present State of Kentucky, etc. Wilmington, 1784, p. 26.
[3] Bartram, William. Travels through North and South Carolina, Georgia, East and West Florida, etc. Phila., 1791, pp. 91, 92, 289, 290, 301.

winter cloisters. But I lived several years in North Carolina and never was witness to an instance of it, yet I do not at all doubt but there have been instances of belated flocks thus forced into such shelter, and the extraordinary severity and perseverance of the season might have benumbed them into a torpid sleepy state; but that they all willingly should yield to so disagreeable and hazardous a situation, does not seem reasonable or natural, when we consider that they are a bird of the swiftest flight and impatient of severe cold. They are easily tamed, when they become docile and familiar, but never learn to imitate the human language."

Before the end of the century, several travellers in quick succession furnish items of interest. In the reminiscences of O. M. Spencer of Hamilton Co., Ohio, we read that [1] "In April (1792).... Flock of parraquets were seen, decked in their rich plumage of green and gold." The same year, John Heckewelder in his journey to the Wabash when he arrives at its mouth, finds [2] "The noise of the many paroquets (a small kind of parrot) was dreadful and not attuned to (his) ears." In 1793, Imlay only lists the [3] "Perroquet" with its Linnæan designation, "Psittacus." In 1794, Loskiel (thinking primarily of the Ohio region) writes,[4] "A few green *Parrots* (psittacus) are seen in the woods in summer, but are in greater numbers further to the south." In the Mississippi valley, Jan. 1, 1796, André Michaux when at Little River, enumerates among the [5] "Birds:....; green Parroquets with yellow heads of the small species;...." At the end of this century or the beginning of the next, John Davis, on a journey from Charleston, S. C., to Coosahatchie in one of many shooting excursions in the woods, writes,[6] "once we brought down some paroquets that were directing their course over our heads to *Georgia*."

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[1] Howe, Henry Hist. Colls. of Ohio. 2nd edit. Cincinnati, 1847, p. 230.

[2] Penn. Mag. of Hist. and Biog. Vol. XII, p. 166.

[3] Imlay, George. A Topographical Description of the Western Territory of North America, etc. 2nd edit. London, 1793, p. 237.

[4] Loskiel, George Henry. History of the Mission of the United Brethren among the Indians in North America. In three parts. Transl. by C. I. La Trobe. London, 1794 (original 1788), p. 92.

[5] Early Western Travels, 1748–1846. Edited by R. G. Thwaites. Cleveland, O., 1904, Vol. III, p. 83.

[6] Davis, John. Travels of Four Years and a Half in the United States of America during 1798, 1799, 1800, 1801, and 1802. London, 1803, N. Y. edit., by A. J. Morrison, 1909, p. 91.

In the earlier half of the nineteenth century many of the travellers in North America record the presence of the paroquet. Capt. Matthew Phelps when "Among the wild fowl" of the Mississippi River, says,[1] "I observed....paroquets...." At Christmas camp, Dec. 25, 1806, near Brown Canon, Colo. (near source of Arkansas river, and 7 miles above Salida which is also above the Grand Canon of the Arkansas) Capt. Zebulon M. Pike [2] "Caught a bird of a new species (*Conurus carolinensis*) having made a trap for him. This bird is of a green color, almost the size of a quail, had a small tuft on its head like a pheasant, and was of a carnivorous species; it differed from any bird we ever saw in the United States. We kept him with us in a small wicker cage, feeding him on meat, until I left the interpreter on the Arkansaw, with whom I left it. We at one time took a companion of the same species and put them in the same cage, when the first resident never ceased attacking the stranger until he killed him." The same year, Priscilla Wakefield (at St. Juans, Florida) in discussing the cypress where the eagles fix their nests, notes that [3] "paroquets, venture to approach the royal bird, and often perch on these inaccessible branches. The paroquets are allured by the seeds which are their favorite repast." In 1807 George Heriot claims [4] that "parrots" are of "the birds of the southern parts of Canada," and that "The northern parts of Canada are visited in the milder seasons by...., parrots,...." The following year, the Travels of the hated Thomas Ashe come out. When on a trip to the Great Miami, he records the paroquet but at the end of his note shows his exaggerative skill. He says, [5] "During the repast I was entertained by the chattering of a flock of paroquets, who had taken up their abode in the trees around me. They were the green and the red neck, that very particular species which are held the most

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[1] Phelps, Capt. Matthew. Memoirs and Adventures of. By Anthony Haswell. Bennington, Vt., 1802, p. 55 (Appendix).

[2] Pike, Zebulon Montgomery, The Expeditions of, During the Years 1805–6–7. New edit. by Elliot Coues. 3 vols. N. Y. 1895, Vol. II, p. 474.

[3] Wakefield, Priscilla. Excursions in North America, etc. London, 1806, p. 95.

[4] Heriot, George. Travels through the Canadas, etc. London, 1807, pp. 516, 517.

[5] Ashe, Thomas. Travels in America Performed in 1806, etc. London, 1808, p. 224.

rare in Europe, and which were once highly valued by the Greeks and Romans."

In 1810 we have two references. Schultz at New Orleans writes that [1] "Those (birds) which may be considered as local are,.... paroquets,...." These "Parroquets are so well known to you that any description of them would be unnecessary. One good quality they possess with which you are perhaps unacquainted: a dozen of them make a most delicious sea-pie." The other note of this year, comes when Cuming opposite Portsmouth (Ohio) on the Virginia side,[2] "observed here, vast numbers of beautiful large green paroquets, which our landlord, squire Brown, informed us abound all over the country. They keep in *flocks*, and when they alight on a tree, they are not distinguishable from the foliage, from their colour."

The next decade furnishes at least eight different writers who remark of the paroquet. The first, David Thomas, a botanist and later engineer in the construction of the western division of the Erie Canal gives it more attention than any other North American bird. He writes of his first acquaintance with this form as follows: [3] "As we approached the banks of *Indian Kentucky*, hearing shrill screams over our heads, we looked up, and first saw the parroquet. These birds, which are about the size of wild pigeons, are sometimes seen on the Miami." In a footnote he gives, "Drake says on the Sciota." When near Lost River and Lick Creek, Ohio, he says, "The parroquet commits depredations on the wheat in harvest, but it is a bird of uncommon beauty. The head is red, the neck yellow, and the body a light green." At French Licks (sulphur springs with salt in them) he finds, "This place is the favorite residence of the parroquet, flocks of which were continually flying round. These birds seem to delight in screaming." At Vincennes, Ind., he remarks of their association with cottonwoods. "A small cotton wood tree stands opposite to the window where I am writing, dark excrescences on its branches like those which appear on

[1] Schultz, Christian. Travels on an Inland Voyage through the States of New York, Pennsylvania, Virginia, Ohio, Kentucky and Tennessee, etc. New York. 2 vols. 1810 pp. 182, 184, 185.

[2] Cuming, F. Sketches of a Tour to the Western Country, through the States of Ohio and Kentucky; etc. Pittsburgh, 1810, p. 141.

[3] Thomas, David. Travels through the Western Country in the Summer of 1816, etc. Auburn, N. Y. 1819, pp. 115, 133, 135, 160, 210, 307.

this species in the western parts of New York. It is well known that these blemishes are produced by the irritation of insects;—first by a puncture when the egg is deposited, and afterwards by the growth and motion of the worm. To procure this food, the *parroquets* have been busily employed, at times, through the day: but though they have become so familiar; and though they excel all the birds of this country in beauty of plumage,—their scream is so discordant, and their fierceness of disposition so apparent, as to preclude every sensation of attachment. These birds build their nests in hollow trees. The strength of their necks is remarkable; and we are assured that when both wings and feet are tied they can climb trees by striking their bills into the bark." In the Wabash region, he observes that, "On the approach of any large bird the *Parroquets* immediately commence flying round and round in flocks, screaming most hideously. In this way, they escape the hawk." His last note is a quotation from "Topographical Description of the State of Ohio, etc." It is, "The green parroquet with a yellow crown, a species of parrot, is very common. It has a harsh unpleasant note, and although easily tamed, it cannot be taught to imitate the human voice. The habits of these birds in some respects, are singular. They are always seen in flocks, which retire at night into hollow trees, where they *suspend themselves by their bills.* These birds also retreat to hollow trees in winter. There have been found, after a severe winter, prodigious numbers in a large tree, filling the whole cavity, where they had perished by the severity of the cold."

In 1815, the above mentioned Daniel Drake in discussing the climate of Ohio takes exception to the opinion of Jefferson, that "the Ohio-countries (are) warmer, in the same parallels, than the Atlantic states." He says [1] "much reliance is placed on the growth and residence, in this country, of certain plants and animals, which in the maritime states are, it is said, not found as far north by several degrees. Of the former Mr. Jefferson has cited the reed and catalpa; of the latter, the parakeet.... This bird, it is true, resides constantly along the Mississippi, Ohio, and their tributary rivers, as far north as 39° 30′, and is seen occasionally up to 42°.

[1] Drake, Daniel. Natural and Statistical View, or Picture of Cincinnati and the Miami Country, etc. Cincinnati, 1815, pp. 115, 118, 119.

But it is a well ascertained fact, that the climate of these latitudes is much colder than that of places in the Atlantic states, where this bird is rarely seen. There must be causes, therefore, for its higher latitude in this country, that are not connected with climate. One of these, Professor Barton suggests, is the southern course of our great rivers. If this bird, as most of its family still are, was originally an inhabitant of the tropics, it must have migrated into the depths of this region, along the Mississippi and Ohio. The wide alluvial vallies of these rivers, it is observed by the late ingenious and lamented Alexander Wilson, abound in the favorite food of this bird; such as the fruit of the cockle burr (*xanthium strumarium* L), cypress, hackberry, beech and sycamore, most of which are rare or unproductive in Pennsylvania. To these, the same distinguished Ornithologist remarks, may be added the salines or salt licks of this country, about which he never failed to see flocks of parakeets. Finding a region abundantly stored with agreeable food, this bird long since became its permanent inhabitant; and acquired hardiness of constitution sufficient to enjoy good health, where the average heat of some months in winter is seven degrees below the freezing point. In the Atlantic states, the rivers flow east or south-east. In advancing towards Pennsylvania, therefore, this bird cannot travel *along*, but must *cross* their vallies; a movement which it has no inducement to make, and hence it generally stops among the cypress swamps of North Carolina and southern Virginia."

In the Illinois country in 1817, Samuel R. Brown finds [1] "paroquets....abound in the same numbers as in other parts of the western country." He records it in Louisiana and speaks of the Mississippi as the place where "The traveller finds himself in the proper region of the paroquets...." When on Patoka river, Indiana, Elias Pym Fordham, Dec. 8, 1817 complainingly writes that [2] "He saw a large herd of deer, but killed nothing but a parroquet." The next year, in Tennessee along the Mississippi, Estwick Evans [3] sees the paroquet. It "is smaller, and more beautiful

[1] Brown, S. R. The Western Gazetteer. Auburn, 1817, pp. 31, 146, 233.

[2] Fordham, E. P. Personal Narrative of, etc 1817–1818. Edited by F. A. Ogg. Cleveland, O., 1906, p. 138.

[3] Evans, Estwick. A Pedestrious Tour, of Four Thousand Miles through the Western States and Territories during the Winter and Spring of 1818, etc. Concord, N. H., 1819, p. 200.

than the common parrot. They go in flocks, and their notes are rapid, harsh, and incessant. It is remarkable, that this bird is subject to a disease resembling apoplexy." In Warden's Account (1819), the paroquet is given as an inhabitant of Tennessee, where [1] "Parroquets frequent the salt licks," in Illinois, and in Mississippi where "Parroquets are seen as high as the Bayou Pierre stream of the Mississippi."

The same year Schoolcraft gives this interesting résumé of the species under discussion.[2] "The *parakeet* is a beautiful bird; it is a kind of parrot; its colours are green, yellow, and red, all bright colours, and it is a pleasing sight to see a flock of them suddenly wheel in the atmosphere, and light upon a tree; their gaudy colours are reflected in the sun with a brilliance of the rainbow: they are a noisy bird, but their notes are disagreeable. This bird is first met with on descending the Ohio about the *falls*, after which they become plenty, are constantly to be seen on the Kentucky or Indiana shore, and add to the delight a traveller feels on descending that beautiful river." In a Journal of a Voyage up the Mississippi River from the mouth of the Ohio to St. Louis, on July 16, he says, "We frequently meet the *paroquet* on the banks of the river, and have passed several flocks today. This is a kind of parrot, a beautiful bird, which is very common in Louisiana, Missouri, and Kentucky." In the Expedition to the Rockies under Major Stephen Long, they (May 27, 1819) [3] "among other birds....noticed about Shawaneetown (Ill. on Ohio river), numerous flocks of psittacus carolinensis,....;" in another place (Engineer Cantonment) it is given in the list of birds; "near Louisville, May 25," "Psittacus Carolinensis....seen several times during the winter"; at the Falls of the Canadian river near the mouth of the Great North Fork, Indian Territory, "The paroquet (with others)....filled the woods with life and music"; and finally, Aug. 24 and 25, 1820, between the Canadian and Verdi-

[1] Warden, D. B. The Statistical, Political and Historical Account of the United States of North America; etc. 3 vols. 1819, Vol. II, p. 351, Vol. III, pp. 55, 10.

[2] Schoolcraft, H. R. A View of the Lead Mines of Missouri. New York, 1819, pp. 37, 232.

[3] James, Edwin. Account of an Expedition from Pittsburgh to the Rocky Mountains Performed in the Years 1819 and '20, etc. under the command of Major Stephen H. Long. 2 vols. Phila. 1823. Vol. I, pp. 32, 373, 377. Vol. II, pp. 159, 226.

gris rivers, Indian Territory, they notice them. On the first day they say, "A flock of paroquets flew over our heads, uttering their loud note, with their usual loquacity." On the second, they record, "Another flock of paroquets were seen to-day."

In the next decade, we begin with H. R. Schoolcraft, the friend of the Indian, who holds at the time of his writing (1821) that[1] "The paroquet is found as far north as the mouth of the Illinois, and flocks have occasionally been seen as high as Chicago." In 1821, this same author again speaks of this form.[2] "We first saw the perroquet about Terra Haute; and this bird is thence frequently seen to enliven the landscape. In the course of the day, we caught one of these showy birds, which had been pounced upon by a hawk. The flock, from which it was struck, happened, at that moment, to be passing over us; and it fell into the water quite near. The wound it had received was very slight, and it soon recovered; and by its cries attracted great numbers of its kind to follow." The year succeeding, J. Woods merely notes, that in Illinois,[3] "Paroquets are the same as are seen in sages in England,—a mischievous bird." In 1822–23, William H. Blane at the same place where David Thomas observed them (French Lick, Ind.) says,[4] "When crossing a small stream, the day after leaving Byrom's I saw a large flock of beautiful green and yellow parroquets. These are the first I had met with; and as they were very tame, and allowed me to come close to them, I got off my horse, and stopped a short time to admire them. I afterwards saw numbers of the same kind in the flats of the Wabash and Mississippi, for this beautiful bird apparently delights in the neighbourhood of streams."

When on the Alabama river below Cahawba, Jan. 6, 1826, Bernhard, Duke of Saxe Weimar encounters,[5] "several paroquets flying round, who kept up a great screaming. Many were shot.

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[1] Schoolcraft, H. R. Narrative Journal of Travles from Detroit Northwest, etc. in the year 1820. Albany, 1821, pp. 259, 260.

[2] Schoolcraft, H. R. Travels in the Central Portions of the Mississippi Valley. N. Y. 1825, p. 151.

[3] Woods, J. Two Years Residence in the Settlements on the English Prairie in the Illinois Country, United States, etc. London, 1822, p. 198.

[4] Blane, William H. An Excursion through the United States and Canada during the Years 1822–23 by an English Gentleman. London, 1824, p. 144.

[5] Bernhard, Duke of Saxe-Weimar Eisenach. Travels through North America, during the years 1825 and 1826. Phila., Pa., Vol. II, pp. 35, 38, 99.

They are parrots, but of a larger species than the common kind, clear green with yellow tips to their wings, and orange-coloured heads, flesh-coloured bills, and long green tails." Two days later, on the same river near Claiborne, he "saw . . . ., on the shores also, numbers of paroquets which make a great noise." Finally, Apr. 8, 1826, when at St. Charles, Missouri, he observes, "In the forest, however, there were . . . .several paroquets, similar to those I had seen on the river Alabama." In 1826, Timothy Flint's Recollections appear. At Cincinnati he finds that a [1] "Flock of paroquest are glittering among the trees, ..." Along the Kentucky river "There were also great numbers of paroquets . . . . "; and of Shawoetown, he says, "My children contemplated with unsated curiosity the flocks of parroquets fluttering among the trees, when we came near the shore." The same author, two years later, observes that in Missouri,[2] "The beautiful parroquet frequents the sycamore bottoms, and poorly compensates by the extreme beauty of its plumage for the injury it does the orchard and garden fruits." In the Ohio river region, 1828, Judge James Hall finds,[3] "Here too, large flocks of paroquets are heard chattering in the woods, or seen sporting their bright green plumage in the sun-beams."

In 1832 we have a summary of the northward range of the Carolina paroquet at that time. Hinton says, (excerpts from Wilson's account) [4] "Of the 168 kinds of parrots enumerated by European writers as inhabiting the various regions of the globe, the Carolina parrot is the only species found native within the territory of the United States. This bird inhabits the interior of Louisiana, and the shores of the Mississippi and Ohio, and their tributary waters, even beyond the Illinois river, to the neighbourhood of Lake Michigan in lat. 42 degrees north; and, contrary to the generally received opinion, is chiefly resident in all these places. Eastward of the Apalachian, it is seldom seen farther north than the state of Maryland, though straggling parties have

[1] Flint, Timothy. Recollections of the Last Ten Years Passed in Occasional Residences and Journeyings in the Valley of the Mississippi, etc. Boston, 1826, pp. 52, 53, 84, 248.

[2] Flint, Timothy. A Condensed Geography and History of the Western States or The Mississippi Valley. Cincinnati, 1828. Vol. II, p. 73.

[3] Hall, James. Letters from the West; etc. London, 1828, p. 190.

[4] Hinton, J. H. The History and Topography of the United States. London, 1832, 2 vol. Vol. II, p. 155.

been occasionally observed among the valleys of the Juniata, and according to some, even twenty miles north-west of Albany, in the state of New York."

For some time after 1781 various authors continued to suppose [1] "that in this (Mississippi) valley the temperature is higher than in the same parallels in the Atlantic country.... Mr. Jefferson asserts, that....paroquets, are seen farther north on the Ohio and Mississippi, than on the Atlantic shore. If it be so, the inference, drawn from these facts, might easily be shown to be erroneous, by showing, that their locality along these streams is fixed by other circumstances, than temperature..... The immense numbers of paroquets, that are seen on the lower courses of the Mississippi, will naturally push their colonies far to the north on that river, where they still find all circumstances, but temperature, the same; where there are old, large and hollow sycamore trees, the favorite haunts of this brilliant bird, furnishing it at once food, shelter, and a home." In another place, Flint speaks at equal length of the [2] "Parroquet, psittacus Caroliniensis. These are birds of the parrot class, seen from latitude 40° to the gulf of Mexico. Their food is the fruit of the sycamore, and their retreat in the hollow of that tree. They are a very voracious bird, preying on apples, grapes, and figs, and all kinds of fruit. They fly in large flocks, and are seen in greatest numbers before a storm, or a great change in the weather. They have hooked, ivory bills, a splendid mixture of burnished gilding and green on the heads, and their bodies are a soft and yet brilliant green. Their cry, as they are flying, is shrill and discordant. They are said to perch, by hanging by their bill to a branch. When they are taken, they make battle, and their hooked bill pounces into the flesh of their enemy. They are annoying to fruit orchards, and in this respect a great scourge to the farmer. We have seen no bird of the size, with plumage so brilliant. They impart a singular magnificence to the forest prospect, as they are seen darting through the foliage, and among the white branches of the sycamore." And, finally, in Florida, whose ornithology "is probably the richest in North

[1] Flint, Timothy. The History and Geography of the Mississippi Valley. 2nd edit., 2 vols. Cincinnati, 1832. Vol. I, pp. 32, 187, 292, 71, 72.

[2] Flint, Timothy. ibid., 2 vols in one. Cincinnati, 1832, Vol. I, pp. 71, 72, 200.

America....," he finds that "In the woods and stationary through the winter are....parroquets,...."

In his "Travels in the Interior of North America," Maximilian, Prince of Wied, finds in 1833 at Fort Clarke on Missouri (old Lewis and Clarke fort) [1] "There are, likewise many interesting species of birds, among which are...., the Carolina parrot,....." At New Harmony on Wabash (winter 1832–33), he notes "(Psittacus Carolinensis) which remain here during the winter. No other kind of parrot seems to bear so great a degree of cold as this. We often saw them flying about in the forests, feeding on the fruit of the plane, when Reaumur's thermometer was at 11° below zero. In the mild climate of the Ohio and Wabash they remain all the year through. They are amusing birds in a cage, and become very tame." When northwest of Harmony at Long Pond, "near a field of maize, in the forest," he writes, "I saw a flock of parrots, of which we often shot many with great ease. They were not shy, and soon re-assembled after our shot had dispersed them. Their manner and note resembled those of the long-tailed paroquet of Brazil. With a shrill cry they flew rapidly from tree to tree, when their beautiful bright green colour was seen to great advantage. Mr. Bodmer has given a very faithful representation of one of these flocks (vide Plate 38, Vol. XXV). They eat the fruit of the planes; and if we did not disturb them, they sat in a row, close together to warm themselves in the faint beams of the January sun. Finally just beyond Weeping-water River (Neb.) he "saw some parrots, which Gardner had already observed," on the same river.

On a trip on the Mississippi river, Arfwedson twice records them. Above Rodney, Miss., he [2] "landed, with a few fellow-travellers, at one of the firewood stations, with an intention of killing some of the small green parrots, which were flying in thousands about in the wood." Again, just below the mouth of the Arkansas river, "our sportsmen came running in every direction from the wood, carrying on their shoulders a variety of birds, among which parrots were

[1] Early Western Travels. Edited by R. G. Thwaites. Vols. XXIII, p. 250. Vol. XXII, p. 168, 169, 194, 195. Vol. XXIV, p. 466.

[2] Arfwedson, C. D. The United States and Canada, in 1832, 1833, and 1843. 2 vols. 1834. Vol. II, pp. 96, 101.

the most conspicuous, on account of the beauty of their plumes." About the same time, Shirreff at Springfield, Ill., finds,[1] "The forests abounded with green coloured paroquets, which fluttered about with a disagreeable noise, in flocks of six or seven." In a "Narrative of a Journey across Rocky Mountains to Columbia River," John K. Townsend at Boonville, Mo., April 8, 1834, says,[2] "We saw here vast numbers of the beautiful parrot of this country (the Psittacus carolinensis). They flew around us in flocks, keeping a constant and loud screaming, as though they would chide us for invading their territory; and the splendid green and red of their plumage glancing in the sunshine, as they whirled and circled within a few feet of us, had a most magnificent appearance. They seem entirely unsuspicious of danger, and after being fired at, only huddle closer together, as if to obtain protection from each other, and as their companions are falling around them, they curve down their necks, and look at them fluttering upon the ground, as though perfectly at a loss to account for so unusual an occurrence. It is a most inglorious sort of shooting; down right, cold-blooded murder." At Independence, Mo., he finds, "Parroquets are plentiful in the bottom lands,...."

Near Fort Leavenworth, Kansas, Murray writes,[3] "I rambled about the woods near our halting-place, with my fowling-piece in my hand,...., but found nothing feathered upon which to exercise my skill except a small flock of green Perroquets (I believe, the species called *Psittacus rufirostris*.) I killed half a dozen, and we cooked them for supper; they were fat, and by no means unpalatable. I retained some of the more gay and brilliant feathers as presents for the Indians." At Hennepin, Ill., 1835, Hoffmann[4] sat down upon a fallen tree among the tangled vines of the rich bottom opposite to Hennepin, and watched a flock of green paroquets fluttering among the wych-elms which here and there skirted the shore,...." In Texas, Edward records[5] "a few flocks of the

[1] Shirreff, Patrick. A Tour through North America; etc. Edinburgh, 1835, p. 246.

[2] Townsend, John K., Phila., Pa., 1839, pp. 20, 21, 24.

[3] Murray, Hon. C. A. Travels in North America during the Years 1834, 1835 and 1836. 2 vols. N. Y. 1839. Vol. I, p. 184.

[4] Hoffmann, C. F. A Winter in the West by a New Yorker. 2 vols., N. Y., 1835. Vol. I, p. 282.

[5] Edward, D. B. The History of Texas; etc. Cincinnati, 1836, p. 75.

green paroquet whose scream is anything but pleasant." The following year, Williams mentions the[1] "Paroquet Psittacus carolinensis" as of Florida; while in Missouri, Wetmore thinks,[2] "The paroquet found in Missouri deserves notice, as peculiar in character and attractive in plumage. This is a bird strangely resembling the green parrot in colour and form; and it is reported of them, that at night they repose within the cavity of a hollow tree, hanging by their curved Roman-nose-beaks. This report may require confirmation." The last notes of the decade are from the pen of Judge Hall, who says,[3] "The paroquet is now seldom seen north of Cincinnati. They are abundant below Louisville, where flocks of them are heard chattering in the woods, or beheld sporting their green plumage in the sunbeams." In enumerating several forms of the western country, as an afterthought, he concludes "with the addition of the paroquet, a bird of beautiful plumage, but very bad character, whose thievish propensities renders him a great nuisance to orchards and cornfields."

In the next decade, Kennedy in a list of the birds of Texas, mentions[4] "the gay, clamorous, and pilfering paroquet,...." In "Notes on the Northwest, etc." Bradford in 1846, finds[5] "a small paroquet....(is) met occasionally." In the "Fauna and Flora of Georgia," George White 1849 speaks of[6] "Centurus Carolinensis. It is a remarkable fact that our paroquets are very rapidly diminishing in number. Along our maritime districts where 15 or 20 years ago they were plentiful, scarcely any are now to be found; and it is probable that in a short time they will entirely disappear from our State."

In 1851, Schoolcraft in his "Personal Memoirs," when between Louisville and Shippensport, writes,[7] "It was about this point, or a little above, that we first noticed the gay and noisy parroquet,

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[1] Williams, J. L. The Territory of Florida, etc. New York, 1837, p. 73.

[2] Wetmore, A. Gazetteer of the State of Missouri. St. Louis, Mo., 1837. pp. 30, 31.

[3] Hall, Jas. Notes on the Western States: Phila. 1838, p. 124.

[4] Kennedy, Wm. Texas: etc. 2nd edit. London, 1841, p. 130.

[5] Bradford, Wm. J. A. Notes on the Northwest or Valley of the Upper Mississippi. New York and London, 1846, p. 20.

[6] White, George. Statistics of the State of Georgia. Savannah, 1849, p. 12.

[7] Schoolcraft, H. R. Personal Memoirs of a Residence of Thirty Years with the Indian Tribes of the American Frontiers: etc. Phila., Pa., 1851, p. 26.

flocks of which inhabited the forests." Our last note comes Feb. 19–24, 1855, when Hon. A. M. Murray [1] "saw" at Palatka?, Fla., "several little green paroquets with yellow heads, the only kind of parrot common to Florida," — the only region where it was definitely known to exist 40 years later (1895).

In 1892, A. W. Butler in his valuable "Notes on the Range and Habits of the Carolina Parrakeet" [2] summarizes the stages of its gradual restriction of range as follows: "From the evidence here presented it seems that they had disappeared almost wholly from Ohio and from Indiana, save the southwestern portion, by some time between 1835 and 1840, and that they left Indiana about 1858. So far as I know, there is but one record of the recurrence of the species in the region thus vacated. The late Dr. J. M. Wheaton gives, upon what he considers good authority, an account of a flock of twenty-five or thirty individuals at Columbus, Ohio, in July, 1862. Within about thirty years from the time first referred to by Audubon the species had entirely disappeared from a territory south of a line drawn, from Chicago, Ill., to Albany, N. Y., to, approximately, a line drawn from some point in Virginia, or perhaps North Carolina, to the lower Wabash Valley. In the next forty-five years they disappeared from southwestern Indiana, Illinois, Iowa, Nebraska, Kansas, Colorado, Kentucky, most of Missouri, and from the immediate vicinity of the Mississippi River, also from the States of the Atlantic coast as far south as Florida. The steady contraction of occupied area still continues. They are now perhaps found in but a few restricted localities. In the southern part of Florida they are still to be found in some numbers. Perhaps a small area in the interior of some of the Gulf States may still be occupied by them. Besides there is an area, whose limits are undefined, in Indian Territory, extending probably into Texas and possibly into Arkansas and Missouri, where Parrakeets are said to be found still. It is but natural to think that the extinction of these birds is but a question of a few years." In conclusion, he says, "All facts concerning their former distribution and their habits as noted when they ranged north of the Ohio River, are

[1] Murray, A. M. Letters from the United States, Cuba, and Canada. 2 vols. in one. N. Y., 1856, p. 228.

[2] 'The Auk', IX, Jan., 1892, pp. 49–56.

very much desired." We trust the present recital of records (not usually encountered in the normal course of ornithologic investigations) will be only one of many answers to this earnest appeal, an incentive to greater search both for other records and for living representatives, and a worthy supplement of the interesting articles already published.

NOTES ON PALMER'S THRASHER (*TOXOSTOMA CURVIROSTRE PALMERI*).

BY EARLE F. STAFFORD.

AMONG the most noticeable and interesting birds about the ranch I had taken in Tucson, Arizona, were a pair of Palmer's Thrashers. The ranch was situated on the border of the creosote and cactus-grown desert, of which this species is characteristic; and while the birds were abundantly scattered among the cholla cactus portions of the desert, especially about the ranches, each of which appeared to have its two, these notes are based, in their details, wholly upon the observation of my own pair.

The Palmer's Thrasher resembles the eastern Brown Thrasher (*Toxostoma rufum*) in carriage, flight and general traits of behavior, having the same nervous vivacity; flying low and rapidly, and running with extraordinary speed on the ground, where most of its food is obtained. I have seen my birds spend much time in the yard half squatting, with braced feet, digging holes of considerable depth (some as deep as two and a half inches) with quick, powerful blows of their sickle-like beaks; or casting aside the mould and parched soil with nervous sidewise thrusts, in search of grubs. On those parts of the desert, too, affected by the birds the ground usually shows plentiful signs of their probing.

The song of this species suggests that of the eastern Thrasher, but lacks its variety and separation into distinct phrases, and is more in the nature of a loud, interrupted carol, clear, and melodious.

Its two or three note call is sharp and startling, like the "sing" of a whip stroke echoing upon itself. These, together with low trills and Wren-like chatters, uttered at times when the birds are together, were the only notes I heard; and the song is not to be confused with the feverish, rollicking music of the Bendire's Thrasher (*Toxostoma bendirei*) — a bird nearly as common in this region as *palmeri*.

For its nesting site the Palmer's Thrasher, selects the cholla cactus (*Opuntia cholla*) almost exclusively, so that one finds it difficult to think of the one apart from the other. This cactus is a formidable plant of light green color, which is scattered now thickly now sparsely over the desert and low mesas, and fairly bristles with barbed spines. In almost every one of good dimension I found a Thrasher's nest, or the remnants of one. Most of the nests are quite unconcealed, for concealment in such a site is both difficult and apparently unnecessary. I have noticed, however, that the nests were usually overhung by some portion of the cactus, possibly for shade. The birds perch readily on the bristling cactus branches, and somehow manage to step between, or gingerly over, the thickset spines. I seemed to have observed a certain cautiousness exercised in the performance, but it is skilfully and easily accomplished without mishap. The Thrashers are fully aware of the danger, however, for the branches in the immediate neighborhood of the nest are completely disarmed, the spines having been bent at the tip or broken off, so that comfortable roosts and safe passage to and from the nest are assured — obviously the work of the bird's bill.

When I arrived at the ranch on January 16, 1912, the pair were conspicuous daily about the yard, usually appearing together and seldom wandering far from each other in their various activities. The male was in song, his favorite perch being the roof-end of the shed whence he could view his nest and domain, and where I was able to photograph him from as near as ten feet while he alternately carolled and preened in the sun, totally indifferent to me. My very gradual approach, gentle movements, and appearance of distraction disarmed his suspicion, and the click of the shutter was the cause of only mild and transient interest. I was surprised to observe how little man as an enemy is feared by many of the birds

in this part of the country. When motionless or moving carelessly about one occasions no more fear than a sheep or a horse, to be merely avoided rather than feared. Commenting on this fearlessness my notes say: "Last night as we sat motionless on the porch one of the Thrashers approached by stages to within five feet of us, caught a moth beneath the umbrella trees, flew up into one of the trees just before me, and then to the tap and bent over again and again for the drops of water that collected just within the mouth of the faucet. All of these acts he performed utterly unconscious of us as living and observing creatures."

The nest which I supposed belonged to them — although I had not seen them near it — I had discovered in one of the two chollas on the ranch ground. It was bulky, yet neat: a deep cup lined with feathers, string, rootlets, straws and many horse hairs, sunk in a large structure of mesquite twigs lodged between the cactus branches. The top of the nest is some three and a half feet from the ground. In regard to this nest I verified a suspicion as thus recorded by my notes: "Jan. 26, 1912 — Last night at about eight o'clock was interested to visit the cholla wherein the Thrashers' nest is, and found one, and possibly both, of the birds at home. I flashed an electric light on the cactus as I approached, and one Thrasher at least flew out whistling shrilly in alarm. Whether the nest itself is occupied during the night is yet a question of doubt."

The next night I settled the question as told in this further extract from my notebook: "At about sunset, and while it was yet quite fully light, I took a small chair and seated myself almost within arm's reach and in full view of the cholla cactus back of the sheds. For twenty minutes nothing appeared save a troop of Desert and Brewer's Sparrows flying by, cheeping, to their roost in the low mesquites. As yet there was no sign of the Thrashers. Suddenly, as the gloom was faintly beginning to gather, one of the birds, without previous warning, arrived from the east and lighted on a fence post near me. I sat quite motionless, but he evidently regarded this unwonted object near his home with suspicion. I felt that he was examining me. Then he uttered, fairly in my ear, a volley of his whip-like whistles, which, after a moment, was loudly answered upon a sudden from the second bird, which seemed to come from the south. The two, thus joined for the night, flew

about in the vicinity of the chollas, though not yet to them, singing and purring softly to each other. One sat just beyond a bush in front of me, on the ground, for ten or more minutes. It was still so light that I contented myself with glances through nearly closed lids. However the birds seemed oblivious of my presence — indeed accepted it as an inanimate feature of the place, and I was quite prepared to have one light upon my head as readily as on the nearby post. I fancied at times, however, that they were watchful.

"At length I heard them enter the chollas close at hand, uttering low notes; and then silence. I looked and saw one perched crouched, I think on a certain de-spined branch above the nest. The other I could not see. For a half hour the bird sat, facing the sunset, and motionless, and I could see its long curved beak and slim body outlined against the sky. As it grew darker I opened my eyes more freely, and I imagined it regarding me the while. At length it moved, and turned about — I thought it had detected me and was on the point of flight — but instead it slid gently down into the big nest and disappeared in its ample cup.

"After another quarter hour I softly started to rise, hoping to escape without disturbing the sleeping bird, but the other Thrasher, which had meanwhile been perching amidst the ruins of a nest in the second cactus, moved uneasily, and when I stood up both darted out whistling in great fright." I have not been able to make out which one of the pair is honored with the comfortable home nest, and which one makes shift in the unsheltered ruins in the adjacent cactus; or whether there is turn-about. I rather think the female is the favored one, however.

"After sunset and before sunrise every day a few sharp whistles from the direction of the chollas announced the roost-going and the waking of the Thrashers with precise punctuality. "They come to the yard" say my notes under January 29, "usually in the morning and again toward evening, drinking at the tub or tap, digging in different places, flying from tree to fence post, or roof top, full of ceaseless energy, and alertness. I have no notion where they spend the rest of their time; but they disappear utterly."

On February 14, I observed signs of courtship in the Thrashers: "One sidled along the fence, and the other followed at a respectful

distance, singing a little, *sotto voce.*" They were constantly in company after this, having little pursuits and "tiffs," and the male, after two weeks of silence, sang oftener and with greater force than before.

On February 16 I watched the female gathering nesting material in the yard — a big beak load of straws, strings and odd bits. Having collected a full freight she flew up to a fence post, paused to look suspiciously at me, and then took flight over the shed and to the cholla where their nest is. On examination it proved that she was replenishing the old lining, which much use had deprived of softness. Twice afterward, on the 22nd and again on the 27th, I saw the female with nesting material. Regarding the latter occasion my notes say: "Just saw the female Thrasher with a small collection of straws and what-not in her beak. The male ran into the middle of the yard, snatched a piece of dry bread, and, running back to the wood-pile with it, began eating it by hammering off bits. Seeing this the female quietly let fall the nesting material and approached her mate with low begging notes. He avoided her at first, but as she followed begging he finally permitted her to carry off the greater part of the piece. She made no further pretense of gathering material, appearing to have forgotten the matter for the afternoon." In this easy and desultory fashion did the Thrashers enter upon their nesting duties. While instinct appeared to overcome any propensity for delay they may have had, they did not seem to have the active enthusiasm characteristic of birds that select a new site and build year after year.

The next day, February 28, was exceptionally spring-like, and on going to the cholla I flushed the female from the nest. She dropped silently to the ground and ran a few paces, turning to look back anxiously. During the next few days I flushed her in like manner, and the male was oftener seen on fence posts near the nest, although both birds continued to make visits to the yard.

Although the pair continued to use the nest at night, and the female was found on it frequently during the day for the following week or so, no eggs were laid, and I was obliged to leave the ranch, on March 9, without seeing their nesting underway. No doubt they were somewhat delayed by a very backward season. How long these birds had been on the ranch I do not know, but its

owner said that a pair had been about the place for years, season in and season out.

As far as I can conclude, then, two Palmer's Thrashers, having mated for life, select a suitable cholla, and build a nest that shall serve indefinitely with such yearly repair as it requires, for the rearing of young in the breeding season, and for sleeping quarters the rest of the year. That the young return to the parental nest I do not believe, but I should be interested to know what becomes of them. At any rate it is clear that after the young are launched, the old pair, while remaining inseparable, lapse into a condition of conjugal camaraderie, and that the male quietly courts his mate anew each spring in anticipation of nesting.

NOTES ON THE BIRDS OBSERVED ON A TRIP THROUGH THE MOUNTAINS OF WESTERN NORTH CAROLINA.

BY STEPHEN C. BRUNER AND ALEXANDER L. FEILD.

THIS paper is the outcome of a trip made by the authors through the mountains of western North Carolina. Our purpose in taking this trip, which was made in the summer of 1911, was to study the birds characteristic of this section and to secure additional information, if possible, concerning their occurrence. Before giving the ornithological records and observations made during this time, a short introduction will serve to give some idea of the character of the country visited and the nature of the trip.

Our route lay through the heart of the Appalachian mountain region and covered a distance of over one hundred miles. Seven counties were visited, one of which was in Tennessee. Only records from North Carolina are included in this paper. The six North Carolina counties traversed were Caldwell, Avery, Mitchell, McDowell, Yancey, and Buncombe. The scenery of this portion of the state is unsurpassed in its beauty and grandeur by any in eastern North America. To give some idea of its superiority to

that of New England, suffice it to say that Mount Mitchell, highest summit east of the Rocky Mountains, stands 426 ft. higher than Mount Washington in New Hampshire, while twenty-three other peaks also surpass the latter in height. Besides these, seventy-nine others tower above 5000 ft. The mountain slopes are covered with unbroken forests of hardwoods, firs, hemlocks, and white pines, except for the "Balds" or natural meadows of the higher summits.

It had for some time been our desire to go to this Switzerland of America to study the birds occurring there, and to get a taste of the simple and strenuous life. We had previously spent a considerable time in the mountains of this region, but had never made any systematic study of bird distribution. The trip was made entirely on foot. We carried no pack-mule nor cook. We had a light camping outfit and carried a 12 gauge single-barrel shotgun and a 303 Savage rifle. We did our own cooking, except for an occasional meal at a native's house. We usually carried with us provisions for several days. Our packs and all belongings weighed thirty-five pounds per man.

Our trip started on June 17 at Edgemont in Caldwell County, which lies upon the flanks of the Blue Ridge. Edgemont is sixteen hundred feet above sea-level and is therefore in the Upper Austral Zone. The immediate vicinity is rather rugged, and is broken by mountain chains whose elevation is about twenty-two hundred feet. Within a few miles of Edgemont on the banks of Wilson's Creek, we made our first camp. Here we remained two days, during which time final preparations were made. In the neighboring region birds were rather abundant. Forty-one species were recorded, of which number the Scarlet Tanager, Mountain Vireo, Song Sparrow, Towhee, and Phœbe were more or less characteristic of the mountains.

From Edgemont we went to Grandfather Mountain, a distance by road of eighteen miles. Our camp was situated on the southwestern side of the mountain in Avery County at an elevation of 4200 ft. Here we stayed one week. This mountain is perhaps the most picturesque in the state. Though not so high as many others — having an elevation of 5964 ft.,— it stands far above all the summits immediately around it. Its surface is extremely

rugged. The steep peaks are masses of rock, covered with scanty and stunted vegetation. The lower slopes however are covered with vast hardwood forests and are watered by numerous streams. We visited the several peaks and the surrounding region. In the balsam forests near the summit were recorded such northern forms as the Brown Creeper, Golden-crowned Kinglet, and Winter Wren. In all, forty-nine species were noted. This was a greater number than was recorded at any other locality. Besides the three species above-mentioned, the Northern Raven, Carolina Junco, Song Sparrow, Towhee, Rose-breasted Grosbeak, Scarlet Tanager, Mountain Vireo, Cairns' Warbler, Chestnut-sided Warbler, Blackburnian Warbler, Black-throated Green Warbler, Canadian Warbler, Wilson's Thrush and Ruffed Grouse were more or less characteristic of the mountains. The Lesser Scaup Duck was a rather interesting record made here. The Blackburnian Warbler and Brown Creeper were not noted subsequently.

From Grandfather Mountain we went to Montezuma, five miles west, and rode by rail twenty-five miles to Roan Mountain station in Tennessee. From this place we ascended Roan Mountain (6313 ft.). The distance to the summit from the station was fourteen miles. This mountain lies on the boundary line between North Carolina and Tennessee, and is the highest peak possessed by the latter state. The greater part of the mountain, however, lies on the North Carolina side. Our camp was pitched in the balsam forest at an elevation of 6100 ft. We remained here ten days and explored all the neighboring country. Here as elsewhere on the trip the weather was ideal. Thirty-two species were recorded. Of these the Bald Eagle, Red-breasted Nuthatch, and Least Flycatcher had not been seen at either Edgemont or Grandfather Mountain. All of the characteristic mountain birds seen by us previously were noted here, except, as has been mentioned, the Brown Creeper and Blackburnian Warbler.

On July 9 we left Roan Mountain, which is in the northern part of Mitchell County, and went fifteen miles southeast to Toecane. From here we rode by rail twenty miles to Altapass, Mitchell County. Then we followed the crest of the Blue Ridge,— our course lying in McDowell, Mitchell, and Yancey Counties to Harvard, in Yancey County. We next proceeded up the South

Toe River to the foot of Mount Mitchell (6711 ft.), Yancey County, which was our final goal. We ascended the mountain by way of Steprock Creek, and placed our camp within a hundred yards of the summit. We were on the mountain only two days. It was our desire to remain longer here; but it became necessary for us to end our trip at this time. Twenty-five species were seen on the mountain. One of these, the Black-capped Chickadee, had not been recorded previously on our trip. Other species were the Golden-crowned Kinglet, Wilson's Thrush, Towhee, Scarlet Tanager, Red-breasted Nuthatch, Winter Wren, Carolina Junco, Black-throated Green Warbler, Hairy Woodpecker, Song Sparrow, and Ruffed Grouse.

On leaving Mount Mitchell we went, through Yancey and Buncombe Counties, to Black Mountain station in the latter county. In covering this distance of twenty miles, we crossed the following peaks: Hallback (6403 ft.), Mt. Gibbs (6591 ft.), Clingmans Peak (6611 ft.), Potato Knob (6419 ft.), Pinnacle (5693 ft.), and several other lower summits. All of these peaks except the last-named lie in the Black Mountains, a spur of the Blue Ridge.

We reached Black Mountain Station on July 17, after having been exactly one month in the field and here concluded our observations.

The total number of species recorded was seventy-eight, not including a Spotted Sandpiper (*Actitis macularia*) seen in Carter County, Tennessee, a few miles from the North Carolina line (elevation 2800 ft.). Of this number only about twenty could be considered peculiar to the mountain region, the other fifty-nine being found as summer residents to a greater or less extent over the entire state. The following is an annotated list of twenty-three of the more interesting species observed.

1. **Marila affinis**. LESSER SCAUP DUCK.— On June 23 a male and two females of this species were seen on Kawana Lake near Linville in Avery County. The elevation of this lake is about 3700 ft. above sea-level. The time and locality would suggest that these were breeding birds although there are no breeding records for North Carolina. This duck has, however, been seen during the summer in the coastal region and is supposed by some to breed there.

2. **Bonasa umbellus umbellus**. RUFFED GROUSE.— This well known game bird was noted on only two occasions, on Grandfather Moun-

tain at an altitude of about 4000 ft. (an adult with a brood of half grown young) and on the south side of Mt. Mitchell at an altitude of 6500 ft.

The " Pheasant " is found in this state only in the mountains, where it is fast diminishing in numbers, due largely to the fact that it is in most places hunted at all seasons of the year.

3. **Haliæetus leucocephalus leucocephalus**. BALD EAGLE.— A Bald Eagle was observed several times soaring above the higher points of the Roan Mountain in Mitchell County. We were informed that Eagles were not uncommon in that section and that several had been killed on the mountain.

4. **Sayornis phœbe**. PHŒBE.— This bird was recorded in Caldwell, Avery, Mitchell, McDowell and Yancey Counties. Although the Phœbe sometimes nests in the central portions of the state, it is a characteristic summer resident only in the mountains, where it is rather common below 5000 ft.

5. **Empidonax minimus**. LEAST FLYCATCHER.— On the south side of Roan Mountain at an altitude of about 4500 ft. this bird seemed to be rather common, especially along Little Rock Creek (where two specimens, an adult and an immature, were secured on July 6). We did not observe it elsewhere.

6. **Corvus corax principalis**. NORTHERN RAVEN.— Two or three of these strange birds were observed on nearly every day of our stay on Grandfather Mountain. A single pair seemed to be residents on Roan Mountain. They were nearly always seen hovering about the highest peaks. The mountaineers informed us that these birds feed largely on carrion, but that they sometimes attack and devour young lambs. (Large flocks of sheep are kept on both Grandfather and Roan Mountains.)

The Raven is fast becoming one of the state's rarest birds and is now nearly if not entirely confined to the highest mountains.

7. **Junco hyemalis carolinensis**. CAROLINA JUNCO.— This Junco was found rather commonly in Avery, Mitchell, and Yancey Counties at altitudes ranging from about 3000 to 6700 ft. on the summit of Mt. Mitchell. It was one of the few birds which was at all numerous on the summits of the highest mountains.

Several nests were found, as follows:

Date	*Locality*	*Altitude*	*Contents*
June 21	Grandfather Mt.	4200 ft.	3 young well-feathered.
26	Grandfather Mt.	4000 ft.	3 eggs.
July 2	Roan Mt.	5300 ft.	3 young just hatched.
2	Roan Mt.	5750 ft.	2 eggs.
2	Roan Mt.	6000 ft.	4 young fairly well feathered.
3	Roan Mt.	6100 ft.	4 eggs.
4	Roan Mt.	5800 ft.	Nest just completed.

8. **Melospiza cinerea melodia**. SONG SPARROW.— Probably no other bird was met with in so many places and at so many different elevations.

We found it common in six counties and at points ranging from 1600 ft. at Edgemont to 6700 ft. on the summit of Mount Mitchell.

9. **Zamelodia ludoviciana**. ROSE-BREASTED GROSBEAK.— Only two individuals of this northern species were noted during the trip, one in Avery County on the Linville River (elevation 3800 ft.) and the other on Grassy Ridge, Mitchell County (elevation 6000 ft.).

10. **Piranga erythromelas**. SCARLET TANAGER.— The Scarlet Tanager was fairly common throughout most of the country visited below 5000 ft. It was recorded in Caldwell, Avery, Mitchell, McDowell, and Yancey Counties.

11. **Bombycilla cedrorum**. CEDAR WAXWING.— Noted in the Transition and Canadian Zones in Avery, Mitchell, Yancey, and Buncombe Counties, but was nowhere common. Several were seen on Roan Mountain at an altitude of 6100 ft.

12. **Lanivireo solitarius alticola**. MOUNTAIN VIREO.— This subspecies of the Blue-headed Vireo was observed only in Caldwell, Avery, and Mitchell Counties, but it is probably tolerably common throughout the mountains.

13. **Dendroica cærulescens cairnsi**. CAIRNS' WARBLER.— On Grandfather Mountain this was the commonest warbler present. A nest containing three eggs was found on June 22. It was a very neat affair, constructed of strips of bark and rootlets, lined with fine rootlets and hair, and placed about one foot from the ground in a cinnamon fern (Osmunda).

After leaving Grandfather Mt. Cairns' Warbler was seen on only two occasions, once on the south side of Roan Mountain and again in the South Toe River valley in Yancey County.

14. **Dendroica pensylvanica**. CHESTNUT-SIDED WARBLER.— Noted rather frequently in portions of Avery and Mitchell Counties. It was most numerous in the valleys near cleared land at altitudes between 3000 and 4000 ft.

15. **Dendroica fusca**. BLACKBURNIAN WARBLER.— The Blackburnian Warbler was tolerably common in the large deciduous forests on the northwest side of Grandfather Mountain. Although diligent search was made we did not find it elsewhere.

16. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— This warbler was found to be fairly common on Mount Mitchell, Roan, and Grandfather Mountains at altitudes ranging from about 3000 ft. to 6600 ft.

17. **Wilsonia canadensis**. CANADIAN WARBLER.— On Grandfather Mountain Canadian Warblers were rather common, being almost as abundant as Cairns' Warbler. They were quite noisy and not at all shy. On Roan Mountain they were much less numerous, being seen on only one or two occasions on the southern slope. After leaving this mountain they were not again observed.

18. **Nannus hiemalis hiemalis**. WINTER WREN.— Was rather common on all the high mountains visited above 4000 ft. On Mount Mitchell it was observed within a few feet of the summit. The bird's

characteristic loud, bubbling song made its presence known in a great many places where otherwise it would have undoubtedly been entirely overlooked.

19. **Certhia familiaris americana**. BROWN CREEPER — Brown Creepers were noted by us only on Grandfather Mountain where they were tolerably common above 4000 ft. An immature specimen barely able to fly was captured on June 24 at an altitude of 5600 ft. This is the first breeding record for this mountain.

20. **Sitta canadensis**. RED-BREASTED NUTHATCH.— Was observed only on Roan Mountain and Mount Mitchell, at which places it was fairly common. This Nuthatch together with the Black-capped Chickadee and Golden-crowned Kinglet were the only birds which seemed entirely characteristic of the Canadian zone, and were found at no time below 5000 ft.

21. **Penthestes atricapillus atricapillus**. BLACK-CAPPED CHICKADEE.— This bird was only seen on Mount Mitchell and the adjoining peaks. It is probably rather common throughout the higher portions of the Black Mountains. Two specimens were taken on Potato Knob, July 16.

22. **Regulus satrapa satrapa.** GOLDEN-CROWNED KINGLET.— Was noted on Mount Mitchell, Roan and Grandfather Mountains. It was the most abundant bird found on Mount Mitchell, the balsams being fairly alive with both adults and birds of the year. A well feathered young was taken on Grandfather Mountain, June 24.

23. **Hylocichla fuscescens fuscescens.** WILSON'S THRUSH, VEERY. — This bird seemed to occur in reasonably large numbers throughout the mountains, above about 4000 ft., but was more abundant on Grandfather Mt. than elsewhere. Here we had the good fortune to hear it sing in company with the Wood Thrush and to compare their songs. We both were of the opinion that the Veery's song is not to be compared with that of the Wood Thrush for clear musical expression; but that there is something about the song of the former which makes it singularly impressive.

As it is desirable to classify the different species according to the elevation at which they were seen, we give below the result of such a grouping. Each bird necessarily falls into one of six groups, as follows:

1. Species (4) observed only in the Canadian Zone (above 5000 ft.).

2. Species (13) observed only in the Canadian and Transition Zones (2000 ft. to 5000 ft. and above).

3. Species (19) observed only in the Transition Zone (2000 ft. to 5000 ft.).

4. Species (10) observed in the Canadian, Transition, and Upper Austral Zones (from below 2000 ft. to above 5000 ft.).

5. Species (28) observed only in the Transition and Upper Austral Zones (from below 2000 ft. to 5000 ft.).

6. Species (4) not observed above the Upper Austral Zone (not above 2000 ft.).

The lists that follow give a fairly good idea of the elevation at which the species may be expected. They are a record of our observations during the trip. We are aware of the fact that some of the observations are incomplete. For instance, the American Crow is placed in the second group, "Species observed only in the Canadian and Transition Zones." The Crow is known to occur from Mexico to Canada, and is evidently met with at all elevations.

1. Species observed only in the Canadian Zone (above 5000 ft.):
   BALD EAGLE (*Haliæetus leucocephalus leucocephalus*).
   RED-BREASTED NUTHATCH (*Sitta canadensis*).
   BLACK-CAPPED CHICKADEE (*Penthestes atricapillus atricapillus*).
   GOLDEN-CROWNED KINGLET (*Regulus satrapa satrapa*).

2. Species observed only in the Canadian and Transition Zones (2000 to 5000 ft. and above):
   RUFFED GROUSE (*Bonasa umbellus umbellus*).
   HAIRY WOODPECKER (*Dryobates villosus villosus*).
   NORTHERN RAVEN (*Corvus corax principalis*).
   CROW (*Corvus brachyrhynchos brachyrhynchos*).
   CAROLINA JUNCO (*Junco hyemalis carolinensis*).
   ROSE-BREASTED GROSBEAK (*Zamelodia ludoviciana*).
   CEDAR WAXWING (*Bombycilla cedrorum*).
   BLACK-THROATED GREEN WARBLER (*Dendroica virens*).
   WINTER WREN (*Nannus hiemalis hiemalis*).
   BROWN CREEPER (*Certhia familiaris americana*).
   WHITE-BREASTED NUTHATCH (*Sitta carolinensis carolinensis*).
   WILSON'S THRUSH (*Hylocichla fuscescens fuscescens*).
   ROBIN (*Planesticus migratorius migratorius*).

3. Species observed only in the Transition Zone (2000 ft. to 5000 ft.):
   LESSER SCAUP DUCK (*Marila affinis*).
   GREAT BLUE HERON (*Ardea herodias herodias*).
   COOPER'S HAWK (*Accipiter cooperi*).
   RED-SHOULDERED HAWK (*Buteo lineatus lineatus*).

SPARROW HAWK (*Falco sparverius sparverius*).
BARRED OWL (*Strix varia varia*).
SCREECH OWL (*Otus asio asio*).
KINGBIRD (*Tyrannus tyrannus*).
LEAST FLYCATCHER (*Empidonax minimus*).
MEADOWLARK (*Sturnella magna magna*).
BACHMAN'S SPARROW (*Peucæa æstivalis bachmani*).
ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*).
YELLOW WARBLER (*Dendroica æstiva æstiva*).
CAIRNS' WARBLER (*Dendroica cærulescens cairnsi*).
CHESTNUT-SIDED WARBLER (*Dendroica pensylvanica*).
BLACKBURNIAN WARBLER (*Dendroica fusca*).
MARYLAND YELLOW-THROAT (*Geothlypis trichas trichas*).
CANADIAN WARBLER (*Wilsonia canadensis*).
TUFTED TITMOUSE (*Bæolophus bicolor*).

4. Species observed in the Canadian, Transition, and Upper Austral Zones (from below 2000 ft. to above 5000 ft.):

TURKEY VULTURE (*Cathartes aura septentrionalis*).
RED-TAILED HAWK (*Buteo borealis borealis*).
FLICKER (*Colaptes auratus luteus*).
CHIMNEY SWIFT (*Chætura pelagica*).
SONG SPARROW (*Melospiza melodia melodia*).
TOWHEE (*Pipilo erythrophthalmus erythrophthalmus*).
RED-EYED VIREO (*Vireosylva olivacea*).
MOUNTAIN VIREO (*Lanivireo solitarius alticola*).
CATBIRD (*Dumetella carolinensis*).
BLUEBIRD (*Sialia sialis sialis*).

5. Species observed only in the Transition and Upper Austral Zones (from below 2000 ft. to 5000 ft.):

BOBWHITE (*Colinus virginianus virginianus*).
MOURNING DOVE (*Zenaidura macroura carolinensis*).
BELTED KINGFISHER (*Ceryle alcyon alcyon*).
DOWNY WOODPECKER (*Dryobates pubescens medianus*).
WHIP-POOR-WILL (*Antrostomus vociferus vociferus*).
RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*).
PHŒBE (*Sayornis phœbe*).
WOOD PEWEE (*Myiochanes virens*).
ACADIAN FLYCATCHER (*Empidonax virescens*).

BLUE JAY (*Cyanocitta cristata cristata*).
ENGLISH SPARROW (*Passer domesticus*).
GOLDFINCH (*Astragalinus tristis tristis*).
CHIPPING SPARROW (*Spizella passerina passerina*).
FIELD SPARROW (*Spizella pusilla pusilla*).
CARDINAL (*Cardinalis cardinalis cardinalis*).
INDIGO BUNTING (*Passerina cyanea*).
SCARLET TANAGER (*Piranga erythromelas*).
WHITE-EYED VIREO (*Vireo griseus griseus*).
BLACK AND WHITE WARBLER (*Mniotilta varia*).
PARULA WARBLER (*Comsothlypis americana americana*).
OVEN-BIRD (*Seiurus aurocapillus*).
LOUISIANA WATER-THRUSH (*Seiurus motacilla*).
YELLOW-BREASTED CHAT (*Icteria virens virens*).
HOODED WARBLER (*Wilsonia citrina*).
BROWN THRASHER (*Toxostoma rufum*).
CAROLINA WREN (*Thryothorus ludovicianus ludovicianus*).
CAROLINA CHICKADEE (*Penthestes carolinensis carolinensis*).
WOOD THRUSH (*Hylocichla mustelina*).

6. Species not observed above the Upper Austral Zone (not above 2000 ft.):

GREEN HERON (*Butorides virescens virescens*).
CRESTED FLYCATCHER (*Myiarchus crinitus*).
PRAIRIE WARBLER (*Dendroica discolor*).
KENTUCKY WARBLER (*Oporornis formosus*).

We wish to acknowledge our indebtedness to Mr. C. S. Brimley of Raleigh, N. C., for valuable suggestions in the preparation of this paper.

A NEW SUBSPECIES OF THE RUFFED GROUSE.

BY OUTRAM BANGS.

SOME years ago I was accustomed to go shooting every autumn in Nova Scotia, and each season I was more and more impressed by the very dark coloration of the Ruffed Grouse killed there. I therefore made into skins during my last two shooting trips to this province a series of sixteen Grouse.

I am very sorry to say I did not skin any young individuals but picked out old birds of both sexes, selecting them one or two at a time from our daily bags which were often large.

Upon comparing specimens the Nova Scotia bird proved to be quite as different from *Bonasa umbellus togata* (Linn.) as that form is from *Bonasa umbellus umbellus* (Linn.), and has been described in MS. as a new subspecies for years. The reason it has not until now been published is that Mr. Brewster had in contemplation a monograph of the Ruffed Grouse for which he had, for a long time, been gathering material, and the new form was to have appeared in it. This project is now indefinitely postponed and the Nova Scotia Grouse may be known as:—

Bonasa umbellus thayeri[1] subsp. nov.

Type, from Digby, Nova Scotia, adult ♂, no. 11453, Bangs Coll., Museum of Comparative Zoölogy. Collected Oct. 9, 1892, by O. Bangs.

Characters. Similar to *Bonasa umbellus togata* (Linn.) but general color, of upper parts darker, more dusky or sooty, less grayish; the whole under parts (except throat) heavily and regularly banded with dusky, the dark bands much blacker and much more boldly contrasted against the ground color — less blended.

In *B. umbellus togata* the flanks and sides are sometimes barred as heavily and the bars are as dark in color as in the Nova Scotia form, but this heavy barring never extends to the chest, breast or middle of belly.

Size and proportions about as in *B. umbellus togata* except the bill which averages just a little larger.

B. umbellus thayeri presents two phases of coloration, which are both

[1] Named for my esteemed friend and co-worker in ornithology, John E. Thayer.

very dark, and not very different; a phase in which there is much dull chestnut or burnt sienna in the upper parts and tail and another in which the tail is wholly dull gray and black and the upper parts are but little varied with dark chestnut markings. The color and markings of the underparts is not different in the two phases, except that very reddish birds sometimes have the bases of the feathers of the upper chest dull chestnut instead of dusky.

Measurements.

No.	*Sex.*		*Wing.*	*Tail.*	*Tarsus.*	*Exposed Culmen.*	*Culmen to base of forehead.*
11453	♂ ad.	Type	184.	157.	50.	15.5	27.
11454	♂ ad.	Topotype	181.	163.	48.	16.	28.
11456	♂ ad.	"	186.	150.	49.	14.5	25.
11459	♂ ad.	"	181.	165.	45.	15.	26.5
11452	♂ ad.	"	178.	150.	46.	15.	26.
11462	♀ ad.	"	180.	132.	45.	12.5	23.
11465	♀ ad.	"	179.	124.	46.	12.5	22.
11461	♀ ad.	"	174.	130.	46.	14.	23.5
11463	♀ ad.	"	173.	123.	46.	12.5	22.
11466	♀ ad.	"	169.	126.	44.	13.	23.

Remarks. The Canadian Ruffed Grouse, *Tetrao togatus* of Linnæus was based wholly upon Brisson's *Lagopus bonalia canadensis* of "Canada." The type locality being without doubt, the region between Montreal and Quebec. There are in Mr. Brewster's collection two fine adult males from the vicinity of Quebec, which are in every way similar to numbers of skins from Maine, Vermont, northern New York, New Hampshire and the higher interior parts of Massachusetts with which I have compared them.

It is probable that the new form is confined to the almost insular province of Nova Scotia, although I cannot be sure about the bird from the coast of New Brunswick as the specimens I have before me are in worn midsummer plumage, and not comparable with the Nova Scotia specimens, all of which were taken in October.

SIXTEENTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS.

THIS constitutes the first supplement since the publication of the third edition of the Check-List in 1900, and includes all cases of proposed additions to the Check-List which were considered at the meeting of the Committee held in Washington, D. C., April 24–26, 1912.

In accordance with a resolution of the Committee adopted at the previous meeting, cases of proposed changes in the Check-List based upon purely nomenclatural grounds while considered and acted upon by the Committee will not be published for the present. The object of this action is to maintain the stability of the names of the new Check-List and make no nomenclatural changes until a reasonable test of time has shown the necessity for them.

Committee { J. A. ALLEN, *Chairman.*
CHARLES W. RICHMOND, *Secretary.*
WILLIAM BREWSTER.
JONATHAN DWIGHT, JR.
C. HART MERRIAM.
ROBERT RIDGWAY.
WITMER STONE.

I. ADDITIONS TO THE CHECK-LIST.

p. 53. After *Puffinus auricularis* insert

Puffinus carneipes GOULD. **Pale-footed Shearwater.** [95.1.]

Puffinus carneipes GOULD, Ann. and Mag. Nat. Hist., XIII, May, 1844, 365 (Small islands off Cape Leeuwin, Western Australia).

RANGE.— Australian and New Zealand Seas, northward to Japan and casually to the coast of California.

p. 120. Immediately before *Totanus melanoleucus* insert

Totanus totanus (LINNÆUS). **Redshank.** [253.1]

Scolopax totanus LINNÆUS, Syst. Nat., ed. 10, I, 1758, 145. (Sweden.)

RANGE.— Europe across Asia Minor south of lat. 55° N. to eastern Siberia. South in winter to Africa, India and the Malay Archipelago. Casual in Greenland.

p. 141. *Lagopus lagopus lagopus* is subdivided, the Ungava form being added as

d. **Lagopus lagopus ungavus** RILEY. **Ungava Ptarmigan.** [301 *c.*]

Lagopus lagopus ungavus RILEY, Proc. Biol. Soc. Wash., XXIV, Nov. 28, 1911, 233 (Fort Chimo, Ungava).

RANGE.— Ungava and probably the eastern shore of Hudson Bay.

p. 149. *Zenaidura macroura carolinensis* is restricted to eastern North America and a western race is added as

c. **Zenaidura macroura marginella** (WOODHOUSE). **Western Mourning Dove.** [316*a*.]

Ectopistes marginella WOODHOUSE, Proc. Acad. Nat. Sci. Phila., VI, No. 3, 1852, 104. ("Cross timbers," north fork of Canadian River.)

RANGE.— Pacific Coast and San Clemente Island east to the Mississippi Valley.

p. 150. *Melopelia asiatica* is subdivided and the following is to be inserted after the range of the species.

a. **Melopelia asiatica asiatica** (LINNÆUS). **West Indian White-winged Dove.** [319.]

Columba asiatica LINNÆUS, Syst. Nat., ed. 10, I, 1758, 163. ('East Indies' = Jamaica ?)

RANGE.— Southern Florida south to Cuba and Jamaica; casual in the Bahamas.

b. **Melopelia asiatica trudeaui** (AUDUBON). **White-winged Dove.** [319*a*.]

Columba trudeauii AUDUBON, Birds Amer. (8°), 1844, VII, 352, pl. 496. (Texas.)

RANGE.— Lower California, southern Arizona, southwestern New Mexico and southern Texas, south to Costa Rica. Casual in southeastern California and Colorado; accidental in Washington.

p. 173. *Otus asio cineraceus* is restricted to the Upper Sonoran and Lower Transition zones of the area now given as its range, while another form from the lower ground is added as

j. **Otus asio gilmani** SWARTH. **Sahuara Screech Owl.** [373*i*.]

Otus asio gilmani SWARTH, Univ. Calif. Pub. Zool., VII, No. 1, May 26, 1910, 1. (Blackwater, Pinal Co, Arizona.)

RANGE.— Lower Sonoran life zone of southeastern California, Arizona, and probably New Mexico; and northwestern Mexico.

p. 178. *Glaucidium gnoma gnoma* is found to be entirely extralimital and the form occurring in the United States will be known as

a. **Glaucidium gnoma pinicola** NELSON. **Rocky Mountain Pygmy Owl.** [379.]

Glaucidium gnoma pinicola NELSON, Proc. Biol. Soc. Wash., XXIII, June 24, 1910, 103. (Alma, New Mexico.)

RANGE. — Mountains of northern Colorado, Arizona, and New Mexico, including the Sierra Madre of northern Mexico.

p. 183. *Ceryle alcyon* is subdivided and the following is to be inserted after the range of the species:

a. **Ceryle alcyon alcyon** (LINNÆUS). [390.]

Alcedo alcyon LINNÆUS, Syst. Nat., ed. 10, I, 1758, 115 (North America).

RANGE.— As now given for the species but excluding the northwest coast.

b. **Ceryle alcyon caurina** GRINNELL. **Northwestern Belted Kingfisher.** [390*a*.]

Ceryle alcyon caurina GRINNELL, Univ. Calif. Pub., Zool., V, No. 12, March 5, 1910, 388. (Graveyard Point, Montague Island, Prince William Sound, Alaska.)

RANGE.— Northwestern coast district.

p. 186. *Dryobates villosus hyloscopus* is restricted to the Canadian and Transition zones of California and Nevada south to northern Lower California and a new race is added as

i. **Dryobates villosus leucothorectis** OBERHOLSER. **White-breasted Woodpecker.** [393*h*.]

Dryobates villosus leucothorectis OBERHOLSER, Proc. U. S. Nat. Mus., 40, No. 1840, June 3, 1911, 608. (Burley, New Mexico.)

RANGE.— Canadian and Transition Zones from southern Utah, northwestern and central New Mexico and extreme southwestern Texas, south to the mountains of western Zacatecas, Mexico.

p. 188. *Dryobates scalaris bairdi* proves to be entirely extralimital. The form so named in the Check-List will be known as

d. **Dryobates scalaris cactophilus** OBERHOLSER. **Cactus Woodpecker.** [396.]

Dryobates scalaris cactophilus OBERHOLSER, Proc. U. S. Nat. Mus., 41, No. 1847, June 30, 1911, 152. (Tucson, Arizona.)

p. 188. *Dryobates scalaris lucasanus* is restricted to the southern half of the peninsula of Lower California north to Ubai and Plaia Maria Bay. The form occupying the northern half of the peninsula will be known as

d. **Dryobates scalaris eremicus** OBERHOLSER. **San Fernando Woodpecker.** [396*b*.]

Dryobates scalaris eremicus OBERHOLSER, Proc. U. S. Nat. Mus., 41, No. 1847, June 30, 1911, 151. (San Fernando, Lower California.)

RANGE.— Lower California north of Ubai and Plaia Maria Bay except the extreme northeastern portion.

p. 195. *Colaptes chrysoides* is subdivided and the following is to be inserted after the range of the species

a. **Colaptes chrysoides chrysoides** (MALHERBE.) **Gilded Flicker.** [414.]

Geopicus (*Colaptes*) *chrysoides* MALHERBE, Revue et Mag. Zool., IV, 1852, 553. (America).

RANGE.— Southern Lower California.

b. **Colaptes chrysoides brunnescens** ANTHONY. **San Fernando Flicker.** [414*a*.]

Colaptes chrysoides brunnescens ANTHONY, Auk, XII, No. 4, Oct., 1895, 347. (San Fernando, Lower California.)

RANGE.— Middle Lower California.

c. **Colaptes chrysoides mearnsi** RIDGWAY. **Mearns's Gilded Flicker.** [414*b*.]

Colaptes chrysoides mearnsi RIDGWAY, Proc. Biol. Soc. Wash., XXIV, Feb. 24, 1911, 32. (Quitovaquito, Arizona.)

RANGE.— Extreme southwestern California, northern Lower California and southern Arizona south to southern Sonora.

p. 250. Immediately after *Spinus* insert the following

[GENUS **EMBERIZA** LINNÆUS.

Emberiza LINNÆUS, Syst. Nat., ed. 10, I, 1758, 176. Type, by subs desig., *Emberiza citrinella* LINNÆUS (Gray, 1840).

Emberiza rustica PALLAS. **Rustic Bunting.** [601.1.]

Emberiza rustica PALLAS, Reise Russischen Reichs, III, 1776, 165, 698. (Valley of the Tirgutui, Dauria.)

RANGE.— Northern Europe to eastern Siberia and Kamchatka, south to China in winter. Casual on Kiska Island, Alaska.]

p. 255. *Passerculus sandwichensis alaudinus* is subdivided, the form occupying the Great Basin region being known as

e. **Passerculus sandwichensis nevadensis** GRINNELL. **Nevada Savannah Sparrow.** [542*d*.]

Passerculus sandwichensis nevadensis GRINNELL, Univ. Calif. Pub., Zool., V, No. 9, Feb. 21, 1910, 312. (Soldier Meadows, Humboldt Co., Nevada.)

RANGE.— Humboldt and Washoe counties, Nevada, and probably throughout the Great Basin, south in winter to the Colorado Desert and Los Angeles Co., California.

p. 352. *Penthestes rufescens rufescens* is subdivided, the form occupying the extreme northern part of the range of the species being known as

d. **Penthestes rufescens vivax** GRINNELL. **Valdez Chestnut-sided Chickadee.** [741*c*.]

Penthestes rufescens vivax GRINNELL, Univ. Calif. Pub. Zool., V, No. 12, March 5, 1910, 414. (Latouche Island, Prince William Sound, Alaska.)

RANGE.— Prince William Sound Region, Alaska.

p. 365. Immediately after *Cyanosylvia* insert

[GENUS **CALLIOPE** GOULD.

Calliope GOULD, Birds Europe (part 16), II, March 1, 1836, pl. 118 and text. Type, by monotypy, *Calliope lathami* GOULD = *Motacilla calliope* PALLAS.

Calliope calliope (PALLAS.)

a. [**Calliope calliope calliope.** Extralimital.]

b. **Calliope calliope camtschatkensis** (GMELIN). **Greater Kamchatkan Nightingale.** [764.1.]

Turdus camtschatkensis GMELIN, Syst. Nat., I, ii, 1789, 817. ("Camtschatca).")

RANGE.— Northeastern Asia, casual on Kiska Island, Alaska.]

II. PROPOSED ADDITIONS TO THE CHECK-LIST NOT ACCEPTED.

Podiceps griseigena reported from Greenland (Henninger, Auk, 1911, 492). This proves to be an error since the original Danish record refers to *P. griseigena* var. *major* which is *Colymbus holbœlli*.

Canachites canadensis atratus GRINNELL, Univ. Cal. Publ., Zool., V, 380, 1910. Characters insufficient for recognition.

Thalassoaëtus pelagicus (PALLAS), reported to have been seen by A. H. Clark near Unalaska (Proc. U. S. Nat. Mus., 38, p. 57, 1910), but as no specimen was obtained the record is not accepted.

Dryobates villosus icastus OBERHOLSER, Proc. U. S. Nat. Mus., 40, 612, 1911. Too near *D. v. hyloscopus*.

Dryobates villosus orius OBERHOLSER, Proc. U. S. Nat. Mus., 40, 609, 1911. Too near *D. v. hyloscopus*.

Dryobates villosus sitkensis SWARTH, Univ. Cal. Publ., Zool., VII, 315, 1911. Regarded as an intergrade between *D. v. harrisi* and *leucomelas.*

Dryobates pubescens glacialis GRINNELL, Univ. Cal. Publ., Zool., V, 390, 1910. Regarded as an intergrade between *D. p. nelsoni* and *gairdneri.*

Dryobates scalaris symplectus OBERHOLSER, Proc. U. S. Nat. Mus., 41, 155, 1911. Too close to *D. s. cactophilus.*

Phlœotomus pileatus picinus BANGS, Proc. N. E. Zool. Club, IV, 79, 1910. Too near *P. p. abieticola.*

Phlœotomus pileatus floridanus RIDGWAY, Proc. Biol. Soc. Wash., XXIV, 33, 1911. Too close to *P. p. pileatus.*

Centurus uropygialis brewsteri RIDGWAY, Proc. Biol. Soc. Wash., XXIV, 32, 1911. Too close to *C. uropygialis.*

Colaptes auratus borealis RIDGWAY, Proc. Biol. Soc. Wash., XXIV, 31, 1911. Too near *C. auratus luteus.*

Molothrus ater artemisiæ GRINNELL, Univ. Cal. Publ. Zool., V, 276, 1909, and

Molothrus ater dwighti BISHOP, Auk, XXVII, 61, 1910. Too close to *M. ater.*

Melospiza melodia inexspectata RILEY, Proc. Biol. Soc. Wash., XXIV, 234, 1911. Regarded as an intergrade between *M. m. rufina* and *merrilli.*

Passerella iliaca sinuosa GRINNELL, Univ. of Cal. Publ., Zool., V, p. 405, 1910. Regarded as identical with *P. i. annectens* (= *meruloides*).

Passerella iliaca altivagans RILEY, Proc. Biol. Soc. Wash., XXIV, 234, 1911. Too near *P. i. schistacea.*

Pipilo maculatus curtatus GRINNELL, Univ. Cal. Publ., Zool., VII, 309, 1911. Too close to *P. m. arcticus.*

Passerina ciris pallidior MEARNS, Proc. Biol. Soc. Wash., XXIV, 217, 1911. Too close to *P. ciris.*

Thryomanes bewicki marinensis GRINNELL, Univ. Cal. Publ., Zool., V, 307, 1910. Too close to *T. b. spilurus.*

Thryomanes bewicki catalinæ GRINNELL, Univ. Cal. Publ. Zool., V, 308, 1910. Too close to *T. b. charienturus.*

Turdus iliacus, reported from Greenland (Henninger, Auk, 1911, p. 492) is already in the list as *Turdus musicus.*

III. PROPOSED CANCELLATIONS NOT ACCEPTED.

Melospiza melodia merrilli.
Melospiza melodia morphna.

Proposition to cancel these two forms (Kellogg. Condor, XIII, 1911, p. 118–120) rejected.

A number of other cases were deferred on account of lack of necessary material.

GENERAL NOTES.

The Ancient Murrelet (*Synthliboramphus antiquus*) **in Ontario.**—The only two Ontario records of the Dovekie (*Alle alle*) prove, on examination of the birds, to be Ancient Murrelets. The first was recorded by Mr. J. H. Ames in 'The Auk', 1902, p. 94, as follows: "A Dovekie (*Alle alle*) was shot Nov. 18, 1901, by H. Macdonald, a fisherman, two miles out in the lake from Toronto, Ontario. Mr. John Maughan, a taxidermist, now has it in his possession. I was present when he opened the stomach, which was empty except for a few small fish bones. It was a female and evidently a young bird, as there was no white on the secondaries and the back was slaty instead of a black." On turning up my Journal I find that I too had noted the absence of white on the wings and the slaty-blue of the back, I also noticed that the beak was very small and the bird itself large for a Dovekie but had no suspicion of the real identity of the bird and repeated the record in my 'Birds of Toronto' (Auk, 1906, p. 441). Recently through the kindness of Mr. Maughan I have been able to compare his bird with a series of Ancient Murrelets in my collection, the Toronto bird is much like a female from Howkan, Alaska, April 12, 1897, but lacks the long white feathers of the sides of the head and nape, the plumbeous rump and upper tail feathers are obscured by dusky, the body feathers under the wings plumbeous instead of black, the chin and throat sooty on only the upper half, and the beak narrower and weaker.

Mr. Maughan's data give the length as 10.25 in., spread 18.5 in.; weight 4 oz., feet light bluish gray, webs darker.

The second bird was recorded by Mr. Everett P. Wheeler in 'Bird Lore', 1909, p. 174, as follows, "November 15, 1908, I found on the Canadian shore of Lake Erie, about seven miles from Buffalo, the body of a Dovekie (*Alle alle*). The skin was identified by Mr. Savage and Dr. Cummings of the Buffalo Academy of Science and is still in my possession. The specimen was a male, entirely free from subcutaneous fat, and the crop was empty." Wishing to know what had become of this bird I wrote to Mr. James Savage of Buffalo who very kindly put me in communication with Mr. Wheeler and in September 1910, the latter presented me with what remained of the specimen explaining that it had been almost completely destroyed by moths. Fortunately the wings are perfect enough to be measured, there are a few feathers on the head, and the beak and feet are uninjured, and the bird can be identified with certainty. There is one other record of the Ancient Murrelet in the region of the Great Lakes, one taken at Lake Koshkonong, Wisconsin, late in October, 1882, and recorded by George B. Dennett (Auk, 1884, p. 98). Of the many accidental migrants to the Great Lakes hardly another species has so restricted or remote a range. The Ancient Murrelet is confined in summer to the North Pacific; breeding in the Aleutians most to the Commander Islands and Kamschatka thence south to the Kurile Islands, apparently not entering Bering Sea proper. In winter it ranges south to Japan, and more rarely from Alaska along the British Columbian coast, and south to California. In view of the restricted range it is difficult to account for the presence of the Murrelets on the Great Lakes, if the birds are young as they likely are, Mr. A. C. Bent's suggestion that they were stragglers to the Arctic Ocean and becoming lost were carried through the Northwest Passage with the ice that moves eastward with the prevailing current, is not improbable. Against this is the fact as Mr. Bent points out, that the Arctic ice has always proved an effective barrier to prevent the eastward wanderings of Bering Sea forms, none of the Auklets or Murrelets having even near relatives on the east coast of Arctic America. Once into Hudson's Bay it is not difficult for a sea bird to reach the Great Lakes.—J. H. Fleming, *Toronto, Ont.*

Franklin's Gull in Wisconsin.— On April 23, 1911, the wings, tail, and numerous feathers of a Franklin's Gull (*Larus franklini* Sw. & Rich.) evidently recently killed were found on the shore of Lake Mendota, near Madison, Wisconsin. The bird was identified at Washington from a wing, and this wing is preserved in the collection of the University of Wisconsin. This gull is very uncommon so far east at any season, and especially so in spring. This seems to be the first spring record of it from this vicinity since 1870.— F. L. Conover, *Madison, Wisconsin.*

Sabine's Gull on the Mississippi River.— I have two skins of *Xema sabini* from the collection of the late C. K. Worthen with the data in his handwriting, both young birds as follows: 20032 Coll. of J. H. F. "Male

juv., Mississippi River near Fox Island, Missouri, September 15, 1900"; 16220 Coll. J. H. F. "Male, Warsaw Illinois, September 15, 1900." These are no doubt two of the three birds referred to by Widmann in 'Birds of Missouri' 1907, p. 26, but the bird is sufficiently rare in the United States to have the location of the specimens definitely recorded.— J. H. Fleming, *Toronto, Ont.*

Caspian Tern (*Sterna caspia*) **in Minnesota.**— On Sept. 29, 1911, Mr. Dan. Schmid, keeper of Big Island Park, shot an adult male and a juvenal female from a flock of eight Caspian Terns on Lake Minnetonka. Both specimens were in good plumage, and were made into skins. The male is now in my collection. This is the first time that I have met with this species in this State.— Albert Lano, *Excelsior, Minnesota.*

The Brown Pelican on Long Island.— On May 26, 1912, we observed a Brown Pelican (*Pelecanus occidentalis*), feeding around the shoals at the western end of Oak Island beach. When first seen, at long range, we decided that it was a stick, with a white top. Five minutes later, to our intense surprise, the stick flew away, and we knew at once it was a Brown Pelican. The great size, the long bill and pouch, the whitish crown and the slow sailing flight as it flapped away majestically over the water were unmistakable with the naked eye, not to mention 9 x binoculars. The bird settled on another sand-bar, and while preening its feathers, we approached to within 150 yards. For the next hour and a half the bird flew from bar to bar, as the tide rose, occasionally catching a fish, by scooping it up with its lower mandible, but for the most part sitting on a bar, preening its feathers, until the tide flushed it off, when it would fly to another. This is the second record for Long Island, as far as we have been able to discover.— Julius M. Johnson and Ludlow Griscom, *New York City.*

An Additional Specimen of the Labrador Duck.— A short time ago, while examining the contents of a large case containing a miscellaneous collection of wild-fowl skins, stored in the museum of the Boston Society of Natural History, I came upon an unlabelled skin that I identified as a juvenal male *Camptorhynchus labradorius*. Dr. Glover M. Allen also examined the specimen and referred it to the same species.

Unfortunately there was no label whatsoever on the skin to give the slightest clue as to when or where it was taken, and there is no reference to any such bird in the Proceedings of the Boston Society of Natural History.

Mr. C. Emerson Brown, who has mounted the specimen, states that it was in very poor condition; being so grease-burned that on relaxing, it disintegrated into countless small fragments. Besides leaving large masses of fat adhering to the skin the preparator had neglected to clean the skull. Such carelessness would lead one to believe that the bird was taken long ago, at a time when neither collector nor recipient considered this species worthy of any especial attention.

The following description may be of interest, though lacking in certain details, as it was taken from the mounted bird making a proper examination of the wings, axillars, etc., impossible.

Head brownish gray, darker on crown. Chin and throat white, this area extending half way around the upper neck, its posterior margin being less clearly defined owing to some of the feathers having narrow ashy tips. Rest of neck ashy. Upper breast with a light ashy area about one and a quarter inches wide, very slightly washed with light brown, extending about three quarters around the body. Breast dark gray with tinge of light brown, the ends of the feathers being minutely dotted and streaked with black. Lower breast, sides, belly, and under tail-coverts brownish gray, lighter on the belly. Scapulars brownish gray, some of the feathers having narrow ashy tips. Long scapulars more pearly. Lesser wing-coverts ashy. Secondaries and ends of greater wing-coverts white. Primaries brownish black; alula blackish brown. Lower back and tail-coverts brownish gray. Tail blackish brown with a slight hoary tinge.

Measurements in inches as follows: culmen, 1.55; bill along gape, 2.25; tarsus, 1.55; middle toe, 2.15.

This specimen is now on exhibition, with another young male of more advanced plumage, in the museum of the Boston Society of Natural History, and is I believe the forty-fourth extant to date.— Winthrop S. Brooks, *Milton, Mass.*

Massachusetts Geese.— The past autumn of 1911 will long be remembered by the gunners along the track of Canada Geese in eastern Massachusetts, on account of the great abundance of these birds. The numbers seen and taken were extremely unusual, and probably have not been exceeded for a great many years.

It has been suggested that protection of fowl on the island of Anticosti may have had something to do with the present apparent increase of our coastal flight. Be that as it may, the next few years will show whether this present abundance is a real increase or only a temporary fluctuation.

In 1908 about 1450 geese were taken in eastern Massachusetts and in 1909 about 1900 (see Auk for July, 1910). This year I took the trouble to again estimate the total kill, though in 1910 I have no figures. The total arrived at for this past season of 1911 is 3518, or nearly twice as many as for 1909 and almost two and a half times as many as for 1908.

There were 2112 geese counted at Dedham and over 1000 of these lit in the pond.

The figures from which the 1911 totals were obtained are given below.

Duxbury Bay	800
Silver Lake	475
Accord Pond, Hingham	300
Great South Pond, Plymouth	225
John's Pond, Sandwich	185
Robbins Pond, Bridgewater	200

Dedham Pond, Pembroke	245
Mashpee Pond, Mashpee	120
Snippituit Pond, N. Rochester	100
Abington Meadows	100
Whitman Pond, Weymouth	120
Great Pond, Weymouth	35
Hingham Harbor	70
Ponkapoag Pond, Canton	108
Indian Head Pond, Pembroke	50
Factory Pond, Hanson	50
Chebacco Pond, Essex	41
Lily Pond, Cohasset	45
Bog in South Hingham	50
Jacob's Pond, Assinippi	50
All other places, about	150
Total	3519

These figures cannot be actually vouched for, but I believe that they are not far from the actual totals. The figure 150, for "all other places" is probably much too low. Mr. A. B. Gardner of Accord, Mass., who collected most of this data for me can be absolutely relied upon. He writes under date of March 7, 1912. "I know that most of these records are correct, and think the rest of them are very close to the right number as I saw someone from most of the places, etc."

There are about 40 gunning stands included in the records.— J. C. Phillips, *Wenham, Mass.*

A Peculiar Plumage of the Canada Goose (*Branta canadensis canadensis*).— On Nov. 29, 1911, Dr. Rockwell A. Coffin, of Boston, Mass., killed at Clark's Island, near Plymouth, Mass., a male Canada goose, on which the white patch on throat and cheeks was missing. The bird's head was entirely black, with the exception of a few small lighter colored feathers on its throat, which showed only upon a very close examination. "He came in with seven other geese on the 29th of November. The other geese were darker on the side of the head than usual." Possibly this may have been an entire family, in which this peculiarity of plumage had become more or less marked.— Fred. H. Kennard, *Boston, Mass.*

Late Record of the Red-backed Sandpiper (*Pelidna alpina sakhalina*) **in Massachusetts.**— On Dec. 27, 1911, I noted a small flock of Red-backed Sandpipers (*Pelidna alpina sakhalina*) at Muskeget Island, Mass. On the 31st I came upon a flock of nine in a driving snowstorm, two of which I secured and found very fat.

I last noted four of these birds on the 14th of January, 1912. Though the nine previous days had been very severe, covering almost all the shore

with ice, these four birds seemed in good condition and they were busily engaged in finding an apparent abundance of food.

The latest record that I can find for this species in Massachusetts, is December 24 (Howe & Allen, Birds of Mass., p. 42.)— WINTHROP S. BROOKS, *Milton, Mass.*

An Albino Egg of Wilson's Plover.— On May 20th, I found a nest of Wilson's Plover (*Ochthodromus wilsonius*) containing three eggs, one a perfect albino. As this egg in size, shape, and texture of shell, corresponds with the other two there seems to be no doubt but that the same bird laid them all. The nesting site was on a shell reef seldom visited by anyone.— GILBERT R. ROSSIGNOL, JR., *Savannah, Georgia.*

Pigeons do not Carry their Eggs.— Bendire in his 'Life Histories of North American Birds' quotes a statement from Mr. Otho C. Poling to the effect that the Band-tailed Pigeon may carry an egg "embedded in the feathers of the belly, and further, held by the legs while flying; but in such cases they seem simply to alight on a limb of a spruce and incubate there without any nest." The only tangible evidence Mr. Poling gives for this extraordinary conclusion, is to the effect that he has more than once, on shooting a female, found an egg embedded in the feathers of the belly. Bendire endorses neither the observations nor the conclusion, but says (p. 126):

"I have quoted, without further comment, the remarkable statement of Mr. Poling, in regard to the alleged removal of eggs by this pigeon."

The matter might have been allowed to rest, were it not that Knowlton, in his Birds of the World (p. 420) has quoted Mr. Poling's conclusion with approval, thus:

"It seems to be established beyond question that when the sitting bird is driven from the nest the egg is not infrequently carried along, being held close to the abdomen by the feet, and immediately on alighting on a limb incubation is resumed without any nest. On this point Mr. O. C. Poling, writing to Major Bendire, says:" etc.

Let us see whether the alleged habit is "established beyond question." The existence of such a habit is rendered extremely improbable, in the first place, by a consideration of the general behavior of pigeons. Pigeons never carry anything with their feet. I have seen pigeons tear up their nest with their bills and thus roll out two eggs that had failed to hatch; but this is very different from carrying the eggs. Again, a pigeon recognizes her egg only by the fact that it is in her nest. Put a strange egg in her nest and she will accept it as her own. Remove her own egg from the nest and place it "on a limb" and she has no means of knowing that it is her egg. Even in those cases, to be mentioned presently, in which I have seen a female carry an egg from the nest inadvertently, I believe she did not recognize it as an egg; at least, she did not sit on it outside the nest. Even if the female carried an egg from the nest and sat on it herself, it is hard to

conceive what would happen when it came time for the male to sit. Mr. Poling makes mention of the bird carrying only one egg. But the set consists of two eggs, and the birds do not incubate (though they may stand over the first egg and guard it) until the second egg is laid. The European Cuckoo, it is said, sometimes carries her egg in her bill (see summary of data, by Francis H. Herrick, in the Journal of Experimental Zoology, 1910). But such a habit is altogether foreign to the behavior of pigeons.

Hence, we must not believe that the Band-tailed Pigeon carries its eggs unless on the very best of evidence. Have we the best of evidence? Not at all. That a pigeon was shot with an egg embedded in the feathers of the belly indicates, not that the bird had carried the egg voluntarily, but that the egg had become accidentally fastened to the feathers. The egg may have been cracked or nicked, and glued to the feathers by the exuding albumen. I have seen even an unbroken egg carried about because stuck to the feathers by some albumen from a broken egg.— WALLACE CRAIG, *Orono, Maine.*

Note on the Bald Eagle and Osprey.— On a number of occasions I have had the good luck to see a Bald Eagle rob an Osprey of his hard-earned meal; but never, until last summer, had I seen the Osprey retaliate in any way whatever. Frequent observations have led me to look upon the latter bird as rather peaceable for a bird of prey, and strongly inclined to attend strictly to business.

On the occasion in question I came out on the shore of Lake Androscoggin, a considerable body of water in the Androscoggin River region of Maine, just in time to see an interesting combat, involving some very fine wing work. The Eagle had just forced the Osprey to drop a fish, but had failed to catch it as it fell. The smaller bird then withdrew to a point about fifty feet above, and suddenly swooping down, attempted to strike the Eagle on the back. Just as it looked certain that the broad back must receive the full force of the stroke, up went one great wing, with an agility and a skill that would have done credit to a practised boxer, and the Osprey was tossed aside with apparently almost no effort. This was repeated several times; when the Osprey, evidently discouraged, gave up the unequal fight and winged away toward the far side of the lake. Immediately the Eagle dropped to the water, and picking up the fish made off with it.

Throughout the performance, the difference between the birds in build and action was very striking: the Eagle, broad, heavy, apparently slow and clumsy — deceptively so, as the event showed; the Osprey, slender, undulating, all agile grace and skill.— FREEMAN F. BURR, *White Plains, N. Y.*

Maynard's Cuckoo (*Coccyzus minor maynardi* Ridgway) **in Cuba.**— On March 9, 1912, I secured a female specimen of the Mangrove Cuckoo, along the bay at "Manati," Guantanamo, Cuba. Not being sure as to

which form it was, I sent it to Mr. J. H. Riley of Washington for identification, who reports it to be *Coccyzus minor maynardi* Ridgw., adding that there was no certainty heretofore to which form the Cuban bird belonged. I have another specimen of this species also a female taken by me along the bay at "Los Caños," Guantanamo on March 26, 1911, which had remained unidentified in my collection until now.— CHAS. T. RAMSDEN, *Guantanamo, Cuba.*

The Cuban Whip-poor-will (*Antrostomus cubanensis* Lawrence) **with Young.**— On April 20, 1912, while riding over some pastures 10 miles south of Bayamo, a city in Oriente Province, Cuba, I came to a patch of woods about two acres in extent which stood in the middle of the pasture and through which flowed a small stream; suddenly there flew up from under the horse's feet four *Antrostomus cubanensis*— two adults and two three-fourths grown young. I secured one of the young by throwing a stick at it, the parents flew short distances each flight, to attract me away from the spot, but I was unable to secure them as I had no gun.

I believe this to be the first record of the young being seen or taken, as also a new locality record: Dr. Gundlach states that he has taken it only at "La Cienaga de Zapata" and in the mountains north of Guantanamo. — CHAS. T. RAMSDEN, *Guantanamo, Cuba.*

A Starling at Squantum, Mass.— On March 26, 1912, on a trip to Squantum and Moon Island with Mr. Richard M. Marble, a Starling (*Sturnus vulgaris*) was seen on the headland, known as Squantum Head. It was in company with four Robins and was viewed on successive perches upon the scattered trees and also as it walked on the ground. The bird was not seen on subsequent visits to the place either by ourselves or by other observers. As Squantum Head is within sight of the gilded dome of the State House, the occurrence of this individual Starling, is, so far as I am aware, the first record of the species in the immediate vicinity of Boston.— HORACE W. WRIGHT, *Boston, Mass.*

A case of Cannibalism among Blackbirds.— On June 17, 1911, in a patch of rushes bordering the Wisconsin River, at Tomahawk, Wisc., I noticed a great commotion among a colony of Red-winged Blackbirds. Upon investigation I found the object of the united attack of the Redwings was an adult male Bronzed Grackle. As the Grackles and Blackbirds appeared to live peaceably side by side all along the river I suspected the bird which was being attacked had wronged the Redwings, and to render my observations more certain I shot the Grackle, and on picking him up found a young Redwing in his bill. He had killed the Redwing by crushing its skull with his heavy bill and would no doubt have carried it off to his own young, had not the adult Redwings attacked him. Judging the young Redwing by its size, it had probably left the nest for about a week, and it is surprising that the Grackle should have selected so large a bird. An

investigation of the nests of the Redwings in the vicinity showed them to be either empty or only one or two young in the several nests which I located. This lead me to believe that the Grackles may have carried off some of the nestlings, for the Redwings usually have from three to five young to a nest.— J. A. WEBER, *Palisades Park, N. J.*

Rusty Blackbirds (*Euphagus carolinus*) **wintering in Essex Co., Mass.**— A flock of Rusty Blackbirds spent most, it not all, the past winter in Danvers, Mass. This seems remarkable considering the great severity of January and February, 1912.

Mr. Brewster records a flock of this species in Brookline, February 8, 1879. Mr. A. C. Conrey noted one on Concord turnpike, Concord, January 22, 1905. Howe & Allen, 1901, give February 20 as earliest, except the accidental February 8, and in Townsend's Birds of Essex Co., March 14 is given.

I first saw a flock of eight individuals during a snowstorm on January 29, feeding on a large pile of manure close to Burley St. On January 30, they were in the same place. I could not find out whether anyone had seen them before this. On February 6, Mr. G. A. Peabody saw twelve on his estate near the same spot, and on February 7, he counted eighteen. I looked up the flock again on February 18, and also counted eighteen birds. They were getting most of their food, apparently, from a large pile of horse manure. From that date until March 19, Mr. Peabody tells me he constantly saw the birds at the same place.— J. C. PHILLIPS, *Wenham, Mass.*

Lark Sparrow (*Chondestes grammacus grammacus*) **in Cuba.**— On December 12, 1911, I took in a "potrero" on the San Carlos Estate, Guantanamo, Cuba, a female specimen of the Lark Sparrow in very fine plumage. This is the first Cuban record for this species. The specimen was kindly compared and identified for me by Mr. W. DeW. Miller at the American Museum of Natural History.— CHAS. T. RAMSDEN, *Guantanamo, Cuba.*

Unusual Nest Site of the Cardinal.— I have known of Catbirds, Phœbes, Robins and Hummingbirds building and rearing their young in vines on porches or verandas; but it was not until the other day (May 11, 1912) that my attention was called to the fact of a Cardinal Grosbeak (*C. c. cardinalis*) exhibiting such implicit confidence in man.

This spring, a pair of these birds built their nest in a small, white wisteria vine running up some wire-netting on the porch of Mr. G. W. H. Soelner at 3436 Seventeenth Street, N. W., Washington, D. C., very near my own home. On the morning of the 13th of May, they completed the somewhat flimsy nest, and one egg was laid. A Purple Grackle, which had undoubtedly watched the entire proceedings, stole the egg a few hours after it had been deposited, and I doubt whether the Cardinals will return.—, R.W. SHUFELDT, *Washington, D. C.*

Cliff Swallow (*Petrochelidon lunifrons* Say) — **A Cuban Record.**— I beg to report the taking of a male specimen of the Cliff Swallow on November 11, 1911. It was flying with others of this species in a band of Barn Swallows (*Hirundo erythrogustra*), quite early that morning, over abandoned cane fields of the San Carlos Estate, Guantanamo, Cuba. This I believe is the first Cuban record for the species.— CHAS. T. RAMSDEN, *Guantanamo, Cuba.*

The Connecticut Warbler in Central Park, New York City.— I was fortunate enough to find an individual of the Connecticut Warbler (*Oporornis agilis*) in Central Park on May 16. The bird was a male in curious plumage, as there was not the usual amount of slate-gray on the breast. At first sight I thought it was a Nashville Warbler, but soon noticed it walking on the ground, with its tail up in the air, and then obtained a view of its breast. It was absurdly tame, and was within eight feet of me, when first observed. During the day I showed it to about ten bird students. Mr. W. deW. Miller, of the American Museum of Natural History, came over in the afternoon, and four of us leaned in a row on a fence, while the bird walked unconcernedly around catching flies, not more than 15 feet from us. We were able to make out every detail, including the elongated tail-coverts. Part of the time the bird was so close that I was unable to focus on it with my binoculars. The Warbler remained in the Park in the rhododendron bushes for six days, walking about frequently in the open. This species is apparently a very rare spring migrant along the Atlantic Coast.— LUDLOW GRISCOM, *New York City.*

Type of the Genus Saxicola. In the April number of 'The Auk', p. 271, in commenting upon Mr. Gregory Mathews' discussion of the type of the genus *Saxicola*, I insisted that Gray's designation of *S. œnanthe* as the type settled the matter. While this conclusion is correct when we consider only the data presented by Mr. Mathews in the January Ibis, I entirely overlooked another paper (Novitates Zoologicae, XVIII, June, 1911, p. 20), in which he calls attention to the earlier designation by Swainson in 1827, of *Motacilla rubicola*. This, of course, alters the situation and renders necessary the use of *Saxicola* for the Chats (*Pratincola* of authors) while *Œnanthe*, as stated by Mr. Mathews, will have to be used for the Wheatears.— WITMER STONE, *Acad. Nat. Sciences, Philadelphia.*

Two Interesting Records for Canada.— Arquatella maritima couesi (Ridg.) ALEUTIAN SANDPIPER. In going over the collections of the Geological Survey in the Museum, I find three specimens of this form of the Purple Sandpiper taken by Mr. Wm. Spreadborough at Clayquot, Vancouver Island, B. C., May 11, 1907. The subspecific determination was made by Dr. Jonathan Dwight who remarks that they are "undoubtedly *couesi*" though darker than the typical coloration and

approaching *maritima*. Clayquot is on the west coast of Vancouver Island in about latitude 49–15′. This forms the first record for this subspecies within the Dominion.

Scotiaptex nebulosa (Forster), GREAT GRAY OWL. Breeding records of this species are rare enough to make note of a bird recently received by the Museum. It is a young bird just changing from the natal down into the juvenal and first winter plumages. Patches of the former remain on all parts of the body but interspersed freely with the latter two. The natal down plumage is dull brown, made hoary by the lighter tips to the feathers. The underparts, wings, back of the neck and facial disk are barred with yellowish gray. The juvenal plumage includes the large flight and tail feathers which are as in first winter coloration. The remainder of the plumage is heavily barred with an ochraceous gray more yellow on the back of the neck and shoulders than elsewhere. The bars average about half an inch wide and the same distance apart. The first winter plumage shows but here and there in small patches and is about as generally seen in winter specimens.

The large wing and tail feathers are well formed and the bird was evidently capable of short flights. However it had not left the nest long nor was it able to fend for itself. Another in like plumage was taken at the same time so the brood had evidently not separated and I think we are justified in concluding that the nesting site was not far distant from the place of capture.

These birds were killed July 31, 1911, in the township of Chisholm, Nipissing District, Ont., by Mayor Kelly of Powassan, Ont. Chisholm township lies about five miles east of the extreme eastern corner of Lake Nipissing, extending south and east from that point.— P. A. TAVERNER, *Victoria Memorial Museum, Ottawa, Ont.*

Some Erroneous Wisconsin Bird Records.— In 'The Auk' for April, 1911, and again in the issue for April, 1912, Mr. Henry K. Coale refers to a pamphlet published in 1902 on 'Birds of Oconto County,' by A. J. Schoenebeck, and republishes some records for Wisconsin which seem to call for further consideration. After first reading Mr. Schoenebeck's list in 1903, I wrote him regarding certain records and received from him prompt and courteous replies, with full accounts of these extraordinary finds. Now that some of the most questionable have received the wide circulation and dignity of 'General Notes,' in 'The Auk' it seems necessary to publish what I have regarding them. Mr. Schoenebeck's absolute honesty and sincerity of belief in these records, at the time, is not to be questioned. It is purely a matter of mistaken identification, and it is a great pity that not one of the questionable records is backed up by a preserved specimen. Had not Mr. Coale republished them in 'The Auk' with the statement that most of the species recorded in Mr. Schoenebeck's original list were preserved in Mr. Schoenebeck's collection, I should have much preferred to say nothing about them.

The record of the Columbian Sharp-tailed Grouse (Auk, April, 1911, p. 276 and April, 1912, p. 238) several hundred miles beyond its known limits, and near the extreme eastern distribution of the Prairie Sharp-tail, seems so strange that I was surprised to see it seriously considered by Mr. Coale. Mr. Schoenebeck wrote me, under date of December 28, 1903, regarding this record: "On a collecting trip in October, 1897, I shot a pin-tail grouse of a very dark color, which we supposed to be *columbianus*. The skin was prepared and two days afterward we lost it, our collecting outfit, and tent by fire."

As to the Black Rail near the mouth of Oconto River, June 9, 1899 (Auk, April, 1911, p. 276) I have the following from Mr. Schoenebeck: "I have only seen this little rail running over dead reeds, but was satisfied that it was *P. jamaicensis*." This sounds to me much more like the young of the Coot, Gallinule, or King Rail; it may have been the Black Rail, but it is far north of its usual range and I hardly think the record should stand. Regarding the Eskimo Curlew (l. c., p. 276): "This specimen brought to me in April, 1899, was so badly spoiled that it was impossible to do anything with it, but the V mark on the breast shows that it was a true *N. borealis*." As a record for a bird virtually extinct at the date, and known from the state, even in the early years of its abundance, only as a very rare straggler, this identification seems open to question.

Of the specimen of the Anhinga (l. c., p. 276) Mr. Schoenebeck wrote me: "In the spring of 1889, Doctor Lawrence brought me this bird *in the skin*, but nearly fresh; claimed to be shot on the Green Bay shore; the skin was not made by an expert, it was only roughly made. The glossy black on the upper parts proved it to be a male. I do not know if Doctor Lawrence has the bird yet or not." It is possible that the Anhinga might wander some three hundred miles out of its regular range, but until this specimen comes to light and proves not to be a Cormorant, I do not think it should stand for the only authentic state record.

As to the breeding Chestnut-collared Longspurs: "This is one of the birds Capt. B. F. Goss and myself captured in June, 1893, on the great plains in the northwestern part of this county. We found a nest containing four eggs and another nearly finished. Now here I must say we were not careful enough about the identification. I shot the female bird and Mr. Goss as well as myself found it a true Longspur and on account of the black wing-coverts we called it the chestnut-collared. We did not save the bird. We were collecting eggs then and we only shot the birds for identification, but never saved any after identified." I think we may safely refuse to accept the determination of this bird, so far out of the known breeding range of the supposed species, by even so accomplished an ornithologist as was Captain Goss.

Mr. Schoenebeck's list contains so many notes of real value that it seems unfortunate that Mr. Coale has selected the few records so obviously based on error for re-publication in 'The Auk.'

While on the subject of Wisconsin bird records, I wish to correct an error

in the 'Birds of Wisconsin' (Bull. Wis. Nat. Hist. Soc., III, p. 124, 1903) for which I am in a way accountable. This is the inclusion in the Wisconsin list of the Long-tailed Chickadee (*Penthestes atricapillus septentrionalis*). Although some of the specimens in question were identified by no less an authority than Doctor Coues, it seems best to drop the subspecies from the state list, as the Long-tailed Chickadee, as now understood, is not known to range to this state, and I now believe the specimens then referred to it were only full plumaged winter examples of *atricapillus* proper.— N. Hollister, *U. S. National Museum, Washington, D. C.*

Rare Virginia Birds.— There has been received by the U. S. National Museum, from Capt. Geo. D. Hitchens of Smiths Island, Virginia, the following birds, all having been taken at that place.

The Sooty Shearwater (*Puffinus griseus*) received in May, 1909, which is as far as known the first record for Virginia.

The Dovekie (*Alle alle*), a specimen was shot January 8, 1912, and sent in the flesh to the Museum. This species had been recorded previously from Smiths Island.

The Razor-billed Auk (*Alca torda*), a specimen was shot March 29, 1912, and sent to the Museum in the flesh, and upon preparing the specimen it was found to be in a much emaciated condition.— Edward J. Brown, *U. S. National Museum, Washington, D. C.*

Notes from Boulder County, Colo.— The following are supplementary to the status of the species as given in Sclater's Birds of Colorado.

Ixobrychus exilis. Least Bittern.— In the Auk, 1911, I recorded the nesting of this species near Boulder in June, 1910. Another nest was found in the same place on July 9, 1911, with five eggs. They were all hatched by July 20, and one of the young was seen by Dr. Morley out of the nest on July 30. These two nesting records are apparently the second and third for the state.

Archibuteo lagopus sancti-johannis. Rough-legged Hawk.— This is the only hawk at all common in the winter on the plains of Boulder Co. I have observed it frequently, singly or two and sometimes three in the course of a trip between the following dates of arrival and departure: Nov. 27, 1909–Mar. 19, 1910; Oct. 30, 1910–Mar. 14, 1911; Oct. 15, 1911–Mar. 31, 1912. A specimen was brought to the museum of the University of Colorado on Feb. 10, 1910.

Glaucidium gnoma pinicola. Rocky Mountain Pygmy Owl.— This small owl was fairly common in the city of Boulder from the first week of January to the middle of February, 1912. One bird was found dead and others were observed in various parts of the city; the number of individuals of course may not have been over three or four, as they were observed singly. On two occasions (at 8 A. M.) I saw this owl feeding on a bird about the size of an English Sparrow. They appeared to be active at all times of the day.

Picoides americanus dorsalis. ALPINE THREE-TOED WOODPECKER.— One was observed on the pine mesas near Boulder at an elevation of about 5800 feet on December 17, 1911, and on January 7, 1912 (probably the same individual).

Asyndesmus lewisi. LEWIS'S WOODPECKER.— A few birds remain all winter in the orchards and cottonwoods of the plains in Boulder Co. I have a few records for December, February, and March.

Zonotrichia leucophrys gambeli. GAMBEL'S SPARROW.— During the three past winters I have observed a small flock of Gambel's Sparrows wintering near a sheltered outcrop of sandstone on the plains east of Boulder. A specimen was taken for record on February 18, 1912.

Melospiza melodia montana. MOUNTAIN SONG SPARROW.— I have found this sparrow at Tolland, 9000 feet, in the middle of July, though not as numerous as the white-crowned and Lincoln's Sparrow which frequent that Park in large numbers.

Bombycilla cedrorum. CEDAR WAXWING.— On September 9, 1910, with Mr. H. C. Williams, I saw five or six in City Park, Denver. On September 11, 1910, in Boulder Cañon, near Boulder, I saw three Cedar Waxwings feeding on the berries of crataegus. These are the only records of this species that I have.

Dendroica townsendi. TOWNSEND'S WARBLER.— In September, during the fall migration, I have found this warbler to be not uncommon in Boulder Co. I have noted it in varying numbers from August 28 to September 28.

Catherpes mexicanus conspersus. CAÑON WREN.— A nest with young was found on July 23, 1911, in the same crevice that contained the nest recorded in 'The Auk,' 1911.— NORMAN DEW. BETTS, *Boulder, Colo.*

Correction.— We regret very much to state that two of the records published in our 'Notes from Eastern Alberta,' Auk, Vol. 28, No. 4, Oct., 1911, have since proved erroneous: *Steganopus tricolor* proved referable to *Lobipes lobatus*, and *Macrorhamphus griseus griseus* to *scolopaceus*. Prof. W. W. Cooke kindly determined these specimens.

We moreover do not wish to be responsible for the three following records,— *Ammodramus savannarum bimaculatus*, *Anthus spraguei*, and *Icterus spurius*, as they are apparently new for Alberta (Prof. W. W. Cooke *in litteris*). These records are obviously of no value as we did not save the skins, but depended upon the more or less brief descriptions of a handbook in identifying them.— WINTHROP S. BROOKS, and STANLEY COBB, *Milton, Mass.*

Birds and the Cotton Scale.— I notice in the January Auk, p. 113, an account of birds eating the "Chinese Cotton Scale" in Colorado Springs. Why 'Chinese' I do not know; the insect in question is *Pulvinaria innumerabilis* Rathvon, common in the United States. Sanders has recently considered it identical with the European *P. vitis*, but it is probably distinct,

and native in America. In any event, it is not Chinese. Newstead in England found that the species of *Parus* fed freely on the immature females of the closely related *Pulvinaria ribesiæ*. The females of this group of *Pulvinaria* lay their eggs (to the number of a thousand or more) in a mass of white cotton-like wax, which adheres to whatever touches it. Hence the insect is aided as well as injured by birds, for the ovisacs adhere to birds' feet, and the eggs are thereby carried from tree to tree.— T. D. A. Cockerell, *Boulder, Colorado.*

Ornithological Notes of Rafinesque in the Western Review and Miscellaneous Magazine, Lexington, Ky.— The following are supplementary to my article in 'The Auk', April, 1912, p. 191. They occur in meteorological articles by Rafinesque in the "Western Review and Miscellaneous Magazine," as follows:

Vol. II, No. 2, p. 123. "*Animals.* On the 9th was seen the first *Phaleria* or butterfly. On the 15th heard the Blue bird, or *Sylvia Sialis*, the harbinger o[f] spring."

[Dated] "Transylvania University, 1st March, 1820."

Vol. II, No. 5, p. 311. "*Animals.* The first Martins were seen in the snow storm of the 2d; they became common the 6th. On the 11th were heard the first frogs."

[Dated] "Transylvania University, 1st May, 1820."

Vol. II, No. 3, p. 186. "*Animals.* Heard the Dove on the 19th. On the 25th the Black birds were already noisy."

[Dated] *Transylvania University, 1st April,* 1820."

Vol. III, No. 2, p. 127. *Animals.* On the 28th, the first flight of wild Geese was seen going South. All the Swallows and Martins disappeared with the first white frost."

[Dated] "*Transylvania University,* October 1st, 1820."

— Samuel N. Rhoads, *Haddonfield, N. J.*

RECENT LITERATURE.

Chapman's Handbook.[1]— For many years the student of birds in America received his inspiration and was guided in his early studies by 'Coues' Key,' and those of our ornithologists who are now nearing middle age have shaped their ideas of ornithology largely upon this classic work. Today however we are forced to realize that another and much larger generation of bird students has grown up whose guiding star has been not 'Coues' Key' but 'Chapman's Handbook,' and the broadening of the whole study, the widespread interest in the living bird as contrasted with the 'skin' is we think largely traceable to the influence of the latter work.

Just as the success of 'Coues' Key' called in time for a new edition so there has arisen an emphatic demand for a more modern 'Chapman,' which the author and publisher have fully met in the volume before us.

It is still the same handy reference volume which made the first edition so popular, but with an increase of 100 pages and with more as well as better illustrations. All of which make it the leading work of reference on bird life in eastern North America, not only for the amateur but for the professional ornithologist.

The introduction has been entirely rewritten and as it stands today is a model of concise statement, nowhere can one find so much information about birds in such a small space. The chapters and their subdivisions are as follows. I. Why we should Study Birds; II. A Word to the Beginner: Finding and Naming Birds; The Equipment of the Field Student; Collecting Birds, their Nests and Eggs; American Ornithological Societies; Current Ornithological Magazines. III. The Study of Birds in Nature: The Distribution of Birds; The Migration of Birds; The Voice of Birds; The Nesting Season; The Plumage of Birds; The Food of Birds; General Activities of the Adult Bird.

The author's wide field experience has enabled him to write upon these subjects largely from personal knowledge which adds materially to the value and interest of the essays. A most important feature moreover is the addition of a series of suggestions to the student under each heading and a bibliography of reliable publications dealing with subject under discussion, which serves as a guide to anyone who desires to pursue his studies

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[1] Handbook of Birds | of Eastern North America | with Introductory Chapters on | the Study of Birds in Nature | By | Frank M. Chapman | Curator of Ornithology in the American Museum of Natural History | Fellow of the American Ornithologists' Union | Foreign Member of the British Ornithologists' Union, etc. | With full-page Plates in colors and black and white | By Louis Agassiz Fuertes | and Text-cuts by Tappan Adney and Ernest Thompson Seton | Revised Edition | New York and London | D. Appleton and Company | 1912. 12 vo. pp. i xxix + 1—530. pll. I–XXIV, figs. 1–136. Library Edition $3.50 net., Pocket Edition, flexible covers, $4.00 net.

farther along special lines. The second portion of the work, 'The Birds of North America east of the Ninetieth Meridian' follows the original edition but certain portions have been revised or rewritten, nesting dates have been added and the distribution and nomenclature have been revised according to the third edition of the A. O. U. Check-List.

The bibliographic feature is also carried through this part of the work and after many species are added the titles of important papers relating to them.

The admirable illustrations especially those by Fuertes add greatly to the usefulness of the book. The color plates of the plumages of the Orchard Oriole, Bobolink, and Scarlet Tanager make the successive changes so clear to us that a description seems scarcely necessary, while the plate of the Thrushes should solve for the bird student of the future any difficulties in their identification.

It remains only to mention the colored faunal map inside the cover, the 'Historical Review' and 'Plan of the Work,' which follow the preface, and the extended bibliography of faunal papers arranged according to states and provinces which closes the volume.

The prophesy of the reviewer of the original edition of the 'Handbook' that it was 'marked for a career of extended usefulness' has been abundantly realized and for the present volume we anticipate the same success but in even greater measure.— W. S.

Eagle Clarke's 'Studies in Bird Migration.'[1] — For nearly thirty years the name of William Eagle Clarke has been closely identified with the study of bird migration in the British Isles. As one of the members of the British Association's 'Committee on the Migration of Birds' he prepared the five reports which resulted from investigations of this body, and now in two handsome volumes, he presents the results of his life work on this subject.

With the exception of the first two chapters the work deals entirely with the author's studies and conclusions. Chapter I is entitled, Some Ancient and Antiquated Views and Chapter II, Some Modern Views. While the latter does not pretend to be a résumé of the literature of the subject, the writings of a number of important students of migration are referred to, and it is rather remarkable that no mention whatever is made of the reports of Prof. W. W. Cooke issued by the U. S. Department of Agriculture. It is likewise remarkable that Dr. J. B. Watson's experiments with the Noddy and Sooty Terns on the Dry Tortugas are quoted from a review by Mr. Chapman in 'Bird Lore' while Dr. Watson's name is not even men-

[1] Studies | in | Bird Migration | By | William Eagle Clarke | Keeper of the Natural History Department, the Royal Scottish Museum | With Maps, Weather Charts, and Other | Illustrations | Vol. I | London | Gurney and Jackson | Edinburgh: Oliver and Boyd | 1912 — 8vo, Vol. I, pp. i–xvi + 1–323; pll. I–IX. Vol. II, pp. i–viii + 1–346, pll. X–XXV. Price 18s. net.

tioned. Mr. Eagle Clarke attributes the origin of the migration of birds to the failure of the food supply on the approach of cold, but adds that today "the migratory habit has become part and parcel of their lives, through countless ages of practice." He considers, as Dr. Watson's experiments have proved, that migration is accomplished "through a special sense of direction unconsciously exercised" or as Professor Newton phrased it by "inherited but unconscious experience." He points out the familiar routes across the Mediterranean all supposed to be due to following the lines of former land bridges, but makes no mention of the route across the Gulf of Mexico which Prof. Cooke seems to have pretty well proven and which certainly follows no such line, crossing as it does the deepest portion of the Gulf. The Chapters covering bird migration in the British Isles are full of interest and replete with detailed data. These chapter headings are as follows: III. The British Isles and their Migratory Birds; IV. The Geographical Aspects of British Bird-Migration; V. Round the Year among the British Migratory Birds: Spring; VI. Autumn; VII. Winter; VIII. Weather Influences: The Meteorology of Bird-Migration; IX. Migration of the Swallow; X. Fieldfare; XI. Wagtail; XII. Song Thrush; XIII. Skylark; XIV. Lapwing; XV. Starling; XVI. Rook.

Most interesting is the account of the east and west migration into England from the valleys of the Rhine, Maas and Schelde. The birds actually fly *northeast* from the highlands bordering the Alps on the north, down the river valleys and across to southern England where the winter climate is milder; so that they winter in a higher latitude than that in which they nest. In the case of the Rooks and certain other species, Mr. Eagle Clarke states that part of those which breed in England arrive from the south in February and March, while at the same time, those of Central Europe which wintered in southern England are leaving that country for their breeding grounds on the headwaters of the Rhine.

Those who keep yearly records of the arrival of birds in America will be interested in comparing their lists with those which our author has prepared for the British 'harbingers of spring.'

The last ten chapters deal with Mr. Eagle Clarke's sojourns on light-ships, lighthouses and remote islands on the British and Scottish coasts, while pursuing his studies. These are as follows: XVII. A Month on the Eddystone: XVIII. A Month on the Kentish Knock Lightship; XIX. Fair Isle, the British Heligoland; XX. A Year with the Migratory Birds at Fair Isle; XXI. The Birds of Fair Isle; XXII. Bird Migration at St. Kilda; XXIII. The Birds of St. Kilda; XXIV. The Flannan Isles; XXV. Sule Skerry; XXVI. Isle of Ushant and Channel Islands. These chapters furnish most interesting reading and a wealth of information. The birds of many of the localities had never been previously studied so that the lists and observations have an interest in addition to that which attaches to the migratory movements.

Mr. Eagle Clarke's 'Studies' will take their place among the noteworthy contributions to the study of Bird Migration, and we can recom-

mend them to all interested in the subject. They are moreover admirable pieces of book making, the paper, typography and binding being all that could be desired, while a number of half-tones, photogravures and maps add to their attractiveness. We may mention especially the frontispiece to volume one from a painting by Marian Eagle Clarke showing the Eddystone Lantern on the night of October 12, 1901, with swarms of migrant birds hovering about in the brilliant illumination.— W. S.

Pycraft's 'A History of Birds.'[1] — There is no recent book with which we are familiar that gives one a better idea of the breadth of ornithology than this volume and probably no book that the student of birds could read with more profit. Too many ornithologists are inclined to be narrow in their views of the study and to them such a work as Mr. Pycraft has produced will prove a revelation.

The amount of information that the author has managed to crowd between the covers of his book is amazing and no matter what the particular branch of ornithology in which we may be interested we are bound to find here illustrations that are new and comments that are suggestive. We may of course be able to pick out weak points in the treatment of certain subjects to which the author has never given especial study, and a few of his quotations may be from sources not thoroughly reliable, but slight delinquencies are inevitable in a work of such broad scope, and its general excellence and reliability are remarkable. Mr. Pycraft's keynote in this work is evolution; and he considers almost every conceivable phase of the relationship of birds to their environment and to one another.

His theories are often highly original and while there may be room for arguments on the other side, he never fails to present the matter in such a way as to provide ample food for thought. His chapters cover the following subjects. I. Introductory — General Structure of Birds; II–III. Phylogenetic — Origin and Relationship of Birds; IV. Œcological — Distribution, etc.; V. Seasonal Life; Effect of Light, Moisture and Temperature; VI. Migration; VII. Relations to Animate Environment; VIII. Peculiar Interrelations; IX. Phases of Social Life; X. Relations of the Sexes; XI. Nidification; XII, Concerning Eggs; XIII–XIV. Care of the Offspring; XV. Nestling Birds and what they Teach; XVI. The Life-History of Birds. XVII. Variation; XVIII. Acquired Characters; XIX. Natural Selection as Applied to Birds; XX. Artificial Selection; XXI. Sexual Selection; XXII. Isolation; XXIII–XXV. Structural and Functional Adaptations; XXVI. Convergent Evolution.

Mr. Pycraft's vast knowledge of avian anatomy enables him to cite

[1] A History of Birds. | By | W. P. Pycraft | Zoological Department British Museum. | With an Introduction by | Sir Ray Lankester, K. C. B., F. R. S. | and numerous Illustrations and Diagrams | Methuen and Co. | 36 Essex Street, W. C. London [1910] — 8vo, pp. i–xxxi + 1–458, with 50 text illustrations and 37 plates, including frontispiece in colors. Price 10s. 6. net.

examples from the structure of various parts of the bird in every discussion of adaptation and development and these chapters impress us as the strongest. His treatment of geographic distribution is hardly up to date but it is difficult to treat this matter adequately in the short space allotted to it, and the same may be said of the chapter devoted to migration. All in all however, there is little to which exception can be taken in the plan and execution of the 'History of Birds.' It should be in every library and it cannot fail to broaden the views of the younger ornithologists and lead them into lines of research which will yield valuable results in the near future.— W. S.

Headley's 'The Flight of Birds.'[1] — The serious study of bird flight brings ornithology into the domain of physics and mathematics and since the average ornithologist does not care to go very far into this field of research a book like the present will find a very general welcome, attempting as it does to explain the subject with as few technicalities as possible. Mr. Headley considers flight under several heads: Gliding, Stability, Motive Power, Starting, Steering, Stopping, The Machinery of Flight, Varieties of Wing and of Flight, Pace, Wind and Flight, Some Accessories. Numerous excellent illustrations are taken from photographs of flying birds in various positions and under varied conditions.

In considering the sailing of Gulls against the wind, so often observed from a steamer's deck, Mr. Headley states definitely that the birds are poised on a steady upcurrent of air over the stern of the vessel, caused by the wind striking the sides of the vessel at an acute angle. Mr. William Brewster after careful consideration of this theory dismissed it absolutely after finding that the Gulls sailed equally well, in advance of the vessel, a hundred yards behind, or fifty yards to windward (cf. 'The Auk,' 1912, p. 90). Therefore it would seem that the last word on this problem is yet to be said and it might be profitable as has been suggested to compare the Gulls to the sailing of an ice yacht which, paradoxical as it may appear, goes faster the nearer it is brought into the 'teeth of the wind.'

Mr. Headley's book is a welcome contribution to an interesting subject, the more so since with the aid of gliders and aeroplanes man is beginning to face the same problems which the bird has solved so successfully.— W. S.

Howard's British Warblers. Part VI.[2] — The latest installment of this beautiful work consists of colored plates of the Willow, Savi's, Rufous and Icterine Warblers with text relating to all but the last, while four photo-

[1] The | Flight of Birds | By F. W. Headley, M. B. O. U. | Author of "The Structure and Life of Birds" | "Life and Evolution" &c | With Sixteen Plates | and Many Text Figures | Witherby & Co. | 326 High Holborn | London | 1912.— Crown 8vo., pp. i–x + 1–163, with 16 plates and 27 text figures. Price 5s. net.

[2] The | British Warblers | A History with Problems | of | their Lives | by H. Eliot Howard, F. Z. S., M. B. O. U. | Illustrated by Henrik Grönvold | London R. H. Porter | 7, Princes Street, Cavendish Square, W. | Price 21s. net.— Part 6. December, 1911.

gravure plates illustrate attitudes of the first two species during the period of courtship. In addition to the detailed life histories, considerable space is devoted in the Willow Warbler biography to a discussion of the probable cause of the early migration of certain species of warblers and also of the probability of the same pair of migrant birds mating in successive years. The author considers the latter highly improbable in species where the males precede the females in migration. The possibility of one or other perishing during the migrations is very great and if the male bird waited for the arrival of his last year's mate, many a male would remain unmated. The evidence seems to point to his mating with the first female to arrive in his neighborhood and this would seem most advantageous to the perpetuation of the species. There is also much of interest in the account of sexual excitement and display on the part of the male birds in the species treated. Both plates and text are fully up to the high standard set by the previous parts.— W. S.

Hartert's Vögel der paläarktischen Fauna.— The seventh part[1] of this notable work on the palæarctic Avifauna comprises the Swifts, Goatsuckers, Bee-eaters, Hoopers, Rollers, Kingfishers, Woodpeckers, Cuckoos and part of the Owls. Owing to the strict adherence to the International Code the nomenclature takes on some changes and accords with the A. O. U. Check-List in genera which are found also in the Nearctic region. *Dryobates* long used in America is adopted for the small black and white woodpeckers and the efforts of our ornithologists in splitting up the North American forms of this genus are far excelled, no less than sixty species and subspecies being listed. *D. major* has sixteen races, and *D. minor* thirteen. *Picus* takes the place of *Gecinus*.

The following new forms appear in the main text or in annotations: *Caprimulgus europaeus sarudnyi*, W. Turkestan; *Dryobates minor buturlini*, Italy; *D. hyperythrus marshalli*, N. W. Himalayas; *Picumnus innominatus malayorum*, Borneo; *P. i. avunculorum*, Nilgiri Hills; *Cuculus canorus bakeri*, Shellong, Khasia Mts.; *C. intermedius insulindae*, Kina Balu, Borneo.

All who have occasion to deal with palæarctic birds will congratulate Dr. Hartert upon the progress of his work.— W. S.

'A Hand-List of British Birds.'[2]— A little more than a quarter-century ago the American Ornithologists' Union, in an effort to establish uniformity

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[1] Die Vögel der paläarktischen Fauna. Systematische Übersicht der in Europa, Nord-Asian und der Mittelmeerregion vorkommenden Vögel. Von Dr. Ernst Hartert. Heft VII (Bd. II, 1). Seite 833–960. Mit 30 Abbildungen. Berlin, 1912.

[2] A Hand-list of | British Birds | with an Account of the Distribution of each| Species in the British Isles and Abroad. | By | Ernst Hartert | F. C. R. Jourdain | N. F. Ticehurst | and | H. F. Witherby. | Witherby & Co., 326 High Holborn, London, W. C. | 1912.— 8vo., pp. i–xii + 1–237. Price 7s 6d. net.

in the names applied to American birds, published a Code of Nomenclature and a Check-List. The tenth edition of Linnæus's 'Systema Naturæ' was adopted as the starting point, trinomials were employed for the designation of subspecies, tautonymic names were admitted and a few other principles then looked upon as revolutionary were put into practice. 'The Ibis' in reviewing the publication regretted that the adoption of the tenth instead of the twelfth edition of Linnæus alone "disposes of the last chance of a scientific language in common with out brethren across the water." As our British friends had not been very successful in establishing a scientific language that had proved common even to the inhabitants of the British Isles, American ornithologists did not take this prediction too much to heart but looked forward with confidence to a time, that they felt sure must come, when the principles adopted in the A. O. U. list would become the basis for a list of British birds. For many years there seemed little chance of their hopes being realized, even though they had the satisfaction of seeing their Code almost in its entirety endorsed by the International Zoological Commission. Recently however, there have been encouraging signs, trinomials have appeared on the pages of 'The Ibis', and here and there time honored names of British birds have been ruthlessly overthrown in order to comply with the rules of the Code. It was therefore with more than ordinary interest that we received notice of the appearance of a new Hand-List of British birds, and with the volume before us we began to turn the pages with much speculation as to what they might disclose.

The motto on the very first page was encouraging "Nomenclature is only 'a means, not an end,' but without uniformity it is a confusion." How the late Dr. Elliott Coues would have relished this improvement upon the A. O. U. motto! The introduction clearly sets forth the lack of uniformity that has prevailed in the nomenclature of British birds, and makes an admirable plea for everyone to help in upholding "the strict letter of the law [as set forth in the International Code] rather than his own convenience, likes and dislikes." How rigidly the authors have lived up to their declaration is seen in the acceptance without a protest of the Brissonian genera, in accordance with a ruling of the Commission, although at least one of the authors was and no doubt still is bitterly opposed to recognizing them.

Turning to the list itself we see that our hopes have been fully realized; indeed we could well believe that we had the last edition of the A. O. U. Check-List before us! Trinomials appear on nearly every page and not only is the binomial name given at the head of each set of subspecies but it is repeated in cases where the species has not been subdivided, thus presenting absolute consistency which the A. O. U. Check-List does not.

As an example of the style and typography of the names we may quote from pages 41–42.

CERTHIA FAMILIARIS.

83. Certhia familiaris brittanica Ridg.— THE BRITISH TREE-CREEPER.
84. Certhia familiaris familiaris L.— THE NORTHERN TREE-CREEPER.

TICHODROMA MURARIA.

85. Tichodroma muraria (L.).—THE WALL CREEPER.

SITTA EUROPÆA.

86. Sitta europæa britannica Hart.— THE BRITISH NUTHATCH.

PARUS MAJOR.

87. Parus major major L.— THE CONTINENTAL GREAT TITMOUSE.

88. Parus major newtoni Prazak.— THE BRITISH GREAT TITMOUSE.

Under each numbered form is given the original reference and type locality, the latter restricted when necessary; and references to the last edition of Yarrell's 'History of British Birds', and Saunder's 'Manual'. Then come three paragraphs on distribution: (1) Distribution in England and Wales, in Scotland and in Ireland; (2) Migrations in the British Isles; (3) Distribution Abroad; — all of them very full. As seen in Nos. 83 and 86 above, original spelling is strictly adhered to. Occurrences that are not fully authenticated or are perhaps escaped cage birds are given in brackets in their proper place in the list and are unnumbered, but "vagrants" of apparently natural occurrence take their regular position and number. Important changes in nomenclature from the later British lists are explained in footnotes.

The only important omission to our mind is that of the generic heading, as without it we cannot always determine the source from which the generic name is taken or which species is regarded as the type.

The list comprises 469 forms — species or subspecies — and as we run over the names we are struck with the remarkable accordance with the A. O. U. List. Not only are the Jaegers named as Americans have for twenty-five years maintained that they should be named, but *Colymbus* actually appears for the Grebes and *Gavia* for the Loons! There are about 190 cases where the same bird occurs in both lists or where the American and British forms differ only subspecifically, and of these 121 have exactly the same binomial name in the two works, while in 63 others the specific name is the same but the generic names differ owing to the tendency of the British authors to 'lump' genera. Twenty-four additional genera occur which have different species on the two sides of the Atlantic, and for all of them the same names are employed in the two lists.

The 'lumping' of genera is particularly noticeable in the ducks and shore-birds. In the former, *Chaulelasmus*, *Nettion*, *Querquedula*, and *Mareca* are included in *Anas*, while *Netta*, *Marila*, *Clangula* and *Charitonetta* of the A. O. U. List are united under *Nyroca*. The reduction of *Acanthis*, *Spinus*, *Astragalinus*, and *Carduelis* to one genus is also rather startling. These cases, as well as six instances where American birds are treated as subspecies of Old World species, are matters of individual opinion and cannot be covered by any Code. On purely nomenclatural questions the two lists are in remarkable accord, there being only thirteen cases of difference in generic and five in specific names.

In the substitution of *Oenanthe* for *Saxicola*; *Hydrobates* for *Thalassodroma*, *Tyto* for *Aluco*; *Canutus* for *Tringa*, *Tringa* for *Helodromas* and

Pterodroma for *Æstrelata* the British List is probably correct. *Harelda* for *Clangula* depends upon whether or not Oken's names are accepted, while the use of *Eremophila* and *Ægolius* depend upon the claim that the prior names *Eremophilus* and *Ægolia* do not invalidate them. In the use of *Bombycilla* for *Ampelis* and *Hirundo* for *Chelidon* the A. O. U. List is unquestionably right. The first author to fix a type for *Hirundo* was Gray, 1840, who designated *H. rustica*. The International Code does not recognize type fixing by restriction except where there are only two species in the genus, so Forster's action in 1817 amounts to nothing. The case of *Grus* vs. *Megalornis* will probably have to be decided by the Commission

In the case of specific names *hyperboreus* Gunn. for the Glaucous Gull and *alba* Gunn. for the Ivory Gull are rejected; *tschegrava* Lepsch. for the Caspian Tern is considered perfectly identifiable; *æsalon* Tunnstall for the Merlin is rejected as a nomen nudum and *funerea* L. for Tengmalm's owl, as unidentifiable.

This comparison shows that it will now be very easy for American and British ornithologists to come together on matters of nomenclature and that the diversity in names at present is due mainly to different views as to the limits of genera.

We congratulate the authors of the British Hand-List upon the character of their work, and upon the great strides that they have made toward uniformity of nomenclature. Let us hope that all British ornithologists will hearken to the plea that they make and adopt the names here set forth in all future writings upon British birds.— W. S.

Horsbrugh's 'The Game-Birds and Water-Fowl of South Africa.'[1] — The first part of this recently announced work is before us. It is beautifully printed on heavy paper, and the plates, printed in colors on egg-shell surface paper, are exceedingly delicate and portray the minute details of plumage characteristic of game-birds with great fidelity, even though the artist has not attempted the life and action, and originality of pose, which we are familiar with in the work of Fuertes and some of our other bird artists.

This part consists of sixteen plates portraying ten Bustards, two Thicknees, three Snipe and a Francolin with a page or two of text to each. This comprises synonymy, local names, brief description, distribution, and a general account of habits and abundance.

The author is apparently not an advocate of excessive generic subdivision and the Bustard's referred to seven genera in the British Museum Catalogue here all appear under the classic name *Otis*.

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[1] The | Game-Birds and Water-Fowl | of South Africa | By | Major Boyd Horsbrugh | (Army Service Corps) | Member of the British Ornithologists' Union and South African | Ornithologists' Union; Fellow of the Zoological Society of London | with | Coloured Plates | By | Sergeant C. G. Davies | (Cape Mounted Rifles) M. B. O. U., M. S. A. O. U. | To be Completed in Four Parts | Part I. | London: | Witherby & Co., 326 High Holborn W. C. | March, 1912. | pp. 1–40, pll. 1–16.

The work should prove an important reference volume to ornithologists and invaluable to the sportsman of South Africa.— W. S.

Mathews' Austral Avian Record. No. 2.[1]— In this number Mr. Mathews gives brief diagnoses of 108 new subspecies of Australian birds and descriptions of the eggs of 137 forms. A few questions of nomenclature are also discussed: the proper name for the Broad-billed Sandpiper is shown to be *Limicola falimellus* Pontoppidan, and the eastern race *L. f. sibirica* is added to the Australian fauna. Vroeg's Catalogue comes in for further discussion and Mr. Mathews adopts still another view as to how it is to be quoted. He regards most of the names in the Catalogue as *nomina nuda* but where possible quotes them from there rather than from the Adumbratiunculæ and credits them to Vroeg![2] — W. S.

Oberholser on the Edible-nest Swiftlets.[3]— In view of the large number of additional specimens of *Callocalia fuciphaga* that Mr. Oberholser has been able to examine since the appearance of his recent monograph of the genus, he is able to recognize ten instead of four geographic forms of this bird. Of these *C. f. amechana*, from the Anamba Island, *C. f. ærophila* from Nias Island, *C. f. mearnsi* from Luzon and *C. f. tachyptera* from Guam, are here described as new.— W. S.

Clark on 'The Ontogeny of a genus.'[4]— In this timely paper Dr. Clark emphasizes the fact that systematists do not devote the careful study to genera that they bestow upon species and subspecies and makes a plea for careful analyses to determine "what genera are logical and valid and what are mere artificial aggregations, brought together solely for the sake of convenience." The origin and development of genera are then discussed as well as the effect of geographic and ecological barriers to their distribution.— W. S.

Wright on Birds of the Jefferson Region.[5]— This is a carefully annotated list of 188 species based mainly upon the author's observations during the past twelve seasons together with those of Mr. F. B. Spaulding.

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[1] The Austral Avian Record. A Scientific Journal devoted primarily to the study of the Australian Avifauna. Vol. I, No. 2. April 2, 1912. Witherby & Co. London. Price 1s. 6.

[2] Cf. 'The Auk,' April, 1912, p. 205.

[3] A Revision of the forms of the Edible-Nest Swiftlet, *Callocalia fuciphaga* (Thunberg). By Harry C. Oberholser. Proc. U. S. Nat. Museum, Vol. 42, pp. 11–20, March 6, 1912.

[4] The Ontogeny of a Genus. By Austin H. Clark. The American Naturalist, Vol. XLV, June, 1911, pp. 372–374.

[5] The Birds | of the | Jefferson Region | in the White Mountains | New Hampshire | [vignette] | by | Horace W. Wright | Published by | Manchester Institute of Arts and Sciences | Manchester, N. H. | 1911. [= Vol. V, Part I of the Proceedings of the Institute], pp. 1–126.

The region covered comprises the town of Jefferson and portions of the towns of Lancaster, Whitefield, Carroll and Randolph and the northern and western slopes of the Presidential Range to the Crawford House Plateau. An introduction furnishes a description of the physical features of the region and the birds characteristic of the several areas. The changes wrought by lumbering and fire, now familiar features of all wooded country, are referred to, resulting here in the decrease in the numbers of the Canada Spruce Partridge, the Three-toed Woodpeckers, Canada Jay, Winter Wren, Brown Creeper, Red-breasted Nuthatch and Hudsonian Chickadee and the increase of the Meadowlark, Yellow Warbler, Wilson's Warbler, Wood Thrush, Prairie Horned Lark, Red-winged Blackbird, Field Sparrow, and House Wren.

The annotations contain many observations of interest and the list as a whole will prove most welcome not only to New Hampshire ornithologists but to many bird students from all parts of the country who are accustomed to visit the White Mountain region.— W. S.

Dill and Bryan on Laysan Island.[1] — This well illustrated pamphlet describes a visit to Laysan, the principal island of the Hawaiian reservation, for the purpose of investigating the damage done by a party of twenty-three foreign plumage hunters who were arrested on the island in 1910, after they had destroyed over 250,000 birds, largely Albatrosses. Fortunately the poachers had been able to despoil only part of the island and it is considered that with immunity from destruction in the future the birds will regain their former numbers. The report shows the same birds present as were recorded by Dr. W. K. Fisher in 1902 with the addition of Bulwer's Petrel, *Bulweria bulweri*, and the Sooty Petrel, *Oceanodroma tristrami*. Estimates place the present bird population at about one million individuals of which one third are Sooty Terns and nearly a third Albatrosses, *Diomedia immutabilis*, and *D. nigra*.

The narrative and list of species are by Prof. Dill, while Prof. Bryan, whose familiarity with the islands and knowledge of the previous slaughter on Midway and Marcus Islands, especially fitted him for the task, has reported in detail on the present and past conditions and on the best methods to pursue in the future protection of the birds. Mr. H. W. Henshaw has contributed a brief summary of this report to the Yearbook of the Department of Agriculture.[2] — W. S.

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[1] Report on an Expedition to Laysan Island in 1911. Under the Joint Auspices of the United States Department of Agriculture and the University of Iowa. By Homer R. Dill, Assistant Professor of Zoology in the State University of Iowa and Wm. Alanson Bryan, Professor of Zoölogy in the College of Hawaii. Bulletin 42. Biological Survey, U. S. Dept. of Agriculture. Washington, 1912.

[2] Our Mid-Pacific Bird Reservation. By Henry W. Henshaw. From the Yearbook, U. S. Dept. Agr., 1911, pp. 153–164.

Economic Publications of the U. S. Department of Agriculture.— Several important papers have been published recently by the staff of the Biological Survey, U. S. Department of Agriculture, relating to economic ornithology. One by Ned Dearborn deals with the English Sparrow.[1] Continued investigation has only emphasized the fact that these birds are everywhere a nuisance,— noisy, filthy and destructive, and the little good they do in destroying some noxious insects is far overbalanced by the damage they inflict. This bulletin deals mainly with the best methods for their destruction and recommends the continual breaking up of their nests and the trapping of the old birds, as the most efficacious means for lessening their numbers. Several styles of traps are figured and described in detail.

A bulletin on the economic status of nineteen common Game, Aquatic and Rapacious birds is the joint work of W. L. McAtee and F. E. L. Beal,[2] though the former author is responsible for the bulk of the sketches. As in other similar publications the distribution and general habits of the several species are briefly considered, while the results of the study of stomach contents are given in considerable detail. Several birds are here treated which have not been included in previous publications of the Department.

Mr. W. L. McAtee has another paper in the Yearbook of the Department of Agriculture dealing with the ' Bird Enemies of the Codling Moth.'[3] He finds that birds are the most effectual natural enemies of this pest and ' in some localities they destroy from 66 to 85 per cent of the hibernating larvæ.' The most useful species are the Downy Woodpecker, Black-headed Grosbeak, Bullock's Oriole and Bush-Tit.— W. S.

The Food of Birds in India.[4]— Under this title Mr. C. W. Mason brings together most of the recorded knowledge upon the food of Indian birds, and presents also field observations of his own, as well as the results of the examinations of 1325 stomachs. The work is edited by the Imperial Entomologist, H. Maxwell-Lefroy, who adds a section summarizing the value of birds to agriculture. Mr. Mason has done a very useful thing in collecting the notes on bird food from the 3 most important Indian scientific journals, and from 10 standard reference works on the avifauna of India. It greatly lightens the task of future students of economic ornithology in India. Moreover the generous leaven of new material gives point and vitality to the whole paper.

" From the economic point of view," says Mason, " the scientific identi-

[1] The English Sparrow as a Pest. By Ned Dearborn. U. S. Department of Agriculture, Farmers' Bulletin, 493, 1912, pp. 1–24, figs. 1–17.

[2] Some Common Game, Aquatic, and Rapacious Birds in Relation to Man. By W. L. McAtee and F. E. L. Beal. U. S. Department of Agriculture, Farmer's Bulletin, 497, 1912, pp. 1–30, figs. 1–14.

[3] Bird Enemies of the Codling Moth. By W. L. McAtee. Yearbook U. S. Department of Agriculture for 1911 (1912), pp. 237–246. (Also separate.)

[4] Mem. Dept. Agr. India. Ent. Ser. Vol. III, Jan., 1912, 371 pp.

fication of birds' food is of the utmost importance, and especially with regard to the insect portion. Economic ornithology is, therefore, a sister science to economic entomology, just as much or perhaps even more so than botany. To aid agricultural interests, nature is called in practically and artificially, and every effort should be made to use such helps from every possible source. Wild birds are the source in question here. . . . We can . . . . by encouragement of useful species and destruction of harmful ones, check the attacks of insects on crops, and enable the country to increase crop outturns, and in every way benefit agricultural and therefore the country's interest." (p. 5).

It is interesting to note that Mr. Mason has reached the same conclusion about several points as have economic investigators in the United States. For instance, his opinion as to the low value of generalized statements founded on field observations on the food of birds agrees with our experience. He properly esteems field observation, however, as a valuable supplement to stomach examination. Mason doubts the value of observations on caged birds, saying "if the natural food is but vaguely known, we learn practically nothing by this method." (p. 15.) Indian birds, like those of the United States, are very fond of grasshoppers. "They are eaten by practically every species of insectivorous bird, and form one of the main supplies from which birds in India draw their insect food." (p. 325.) Fondness for Scarabæidæ and weevils is also characteristic of birds of both countries. Mason says furthermore that butterflies do not form any appreciable proportion of the food of any . . species of bird," a conclusion agreeing perfectly with experience in the United States. We have been informed however by supporters of the mimicry theory that in the tropics all is different and that butterflies are freely eaten by birds. Mason's data from the examination of the stomachs of tropical birds is by no means the only evidence that these statements are highly speculative. In commenting on Frank Finn's experiments in feeding butterflies to birds, which Finn at the time thought afforded proof that there is a natural taste for butterflies among birds, Mason justly remarks "they have little importance to economic ornithology since most of the experiments were conducted with caged birds, these therefore being under unnatural conditions." (p. 338.)

Mason makes some very justifiable remarks on the economic value of seed-eating birds, expressing views which may be more or less justly applied in the United States. He says: "In India I consider a bird eating weed seed as of no value whatever. They may keep weeds down to a certain extent, but this is of minor importance in a country where labour is cheap and where farming is not practised on such intensive lines as elsewhere. Even in intensive cultivation we cannot rely on weeds being kept down by birds and the expense of cultivation to eliminate weeds is, I believe, not reduced in the slightest by the action of birds." (p. 9.) In addition to this he says: "We can attach little, if any, importance in India to weed-seed or weed-eating birds; we attach no more importance to them than we do to weed eating insects. As a rule a weed-seed eating bird is spoken of as

beneficial, while we seldom hear it said or see it stated that an insect with identically the same food material is beneficial. It is needless to say that both the birds and the insects have the same economic importance." (p. 309.) This point is very well taken, and brings us face to face with the dilemma of rating many weevils as beneficial when they are certainly potentially injurious and cases of the transfer of their attentions to cultivated plants are not rare. It is a more practicable as well as more correct course to follow Mason in rating them as well as the seed-eating birds as of neutral significance.

We are rather surprised to learn that Mason considers ants as of neutral importance. They are far from so being in the American tropics, where they are practically the "lords of creation." Even in the United States we believe their bad qualities are preponderant. Mason differs decidedly from American investigators regarding the value of the volumetric method of estimating the contents of birds' stomachs, and we shall discuss this important question at length elsewhere.

Part IV of this report, a summary of the value of birds to agriculture is of great interest, as being written by the eminent economic entomologist, H. Maxwell-Lefroy. Some of his conclusions are as follows:

"One has only to read the lists of the food of beneficial species to get an idea of the immense part they play in reducing insect damage. Nearly all insects have special enemies such as parasites which attack each individually, but which produce alternative abundance and scarcity of each insect; that is, with the natural action of the special checks such as parasites, you get alternate 'Waves' of insect pest and parasite; this is where the birds' importance is shown; they are not restricted, they eat many kinds of insects and when a pest has for the time got ahead and is abundant the birds are there to feed on it just because it is abundant and because at one time one is abundant, at another time another is, and the birds eat them all. To put it figuratively they cut off the tops of the waves and tend to keep them all at a uniform level, none being ever destructively abundant. In my opinion from man's point of view this is the special function in nature of birds and if the bird population is small outbreaks of insects are frequent." (p. 364.)

"The impression one gains by reading the detailed records and by correlating it with one's knowledge of the insects is of a ceaseless war waged by birds, not as a war but as the daily search for food, on edible insects which are mainly those destructive ones which have a compensating very high ratio of increase and which are ceaselessly breeding and increasing against the ravages caused in their numbers by their enemies." (p. 368.)

"It is difficult to overestimate the value of birds as a class and their function seems to be, not so much the keeping down of individual destructive species (which is done by special parasites each destructive insect has), as the cutting off of the crest of the wave of increase, the checking of those insects which by favour of climatic or other influence elude their checks and become abundant." (p. 369.)

Coming from so distinguished an entomologist, these conclusions carry much weight, and they are well worth the attention of certain economic entomologists of the United States, who have expressed very different views of the relative importance of birds and parasitic insects.— W. L. M.

Bryant, on Relation of Birds to an Insect Outbreak in California.[1]— This valuable economic paper deals with an outbreak of a butterfly, *Eugonia californica*, which swarmed over portions of California and the larvæ of which defoliated the Snow-brush and Buck-brush, two species of *Ceanothus*. Mr. Bryant's investigations show that five species of birds fed upon the butterflies. Brewer's Blackbird (*Euphagus cyanocephalus*) being the most important and consuming 95 per cent of all the butterflies eaten by birds. Butterfles seem to be rarely eaten by birds under normal conditions and the change of food in this instance is interesting as illustrating how valuable a bird not usually of economic importance may become under extraordinary conditions. The great benefit entailed in the destruction of female butterflies before or during ovipositing as compared with the destruction of larvæ is also pointed out by the author and he estimates that of one Brewer's Blackbird destroyed 100,000 butterflies in a month and his observations seem to support him. If one third of these were females, the destruction of eggs would amount to 336,000! — W. S.

Economic Ornithology in Recent Entomological Publications.— The following reviews relate exclusively to publications of the U. S. Bureau of Entomology, hence the name of that office is not repeated in the reference. The first article,[2] in point of date of issue, which we desire to note deals with the bill-bug (*Sphenophorus callosus*). This species, which does great damage to corn in many states, is commonly known in the Carolinas as the "curlew-bug." This appellation refers to a point in common between the bird and the beetle — a long curved beak. One bird enemy of the curlew-bug, the Nighthawk, is mentioned on the authority of the Biological Survey. The finding of not only this species, but of several other *Sphenophorus*, in stomachs of Nighthawks, has a bearing on a debated point, *i. e.*, whether these beetles fly. There is no doubt that most if not all of those eaten by the Nighthawk are taken on the wing.

The false wireworms of the genus *Eleodes*, family Tenebrionidæ, are said [3] to do more damage to newly planted grain in the northwestern states than any insect pests other than the true wireworms of the family Elateridæ. The Sage Hen, the Burrowing Owl, and Butcherbird are said to feed upon them and Brewer's Blackbirds often follow the plow to pick up the larvæ and pupæ. Western Bluebirds were seen to feed on larvæ which had

[1] The Relation of Birds to an Insect Outbreak in Northern California during the Spring and Summer of 1911. By Harold C. Bryant. The Condor, Vol. XIII, Nov., 1911, pp. 195–208.

[2] Webster, F. M. The so-called "curlew-bug." Bull. 95, Pt. IV. April 10, 1912.

[3] Hyslop, J. A. Bull. 95, Pt. V, April 22, 1912.

been driven to the surface by a heavy rain. From observations and experiments upon domesticated and other confined birds it was learned that chickens, ducks, and the Reeves and Silver Pheasants will eat the *Eleodes*, and that turkeys and the Golden, and Lady Amherst Pheasants refuse them. The author remarks however, that the latter birds were "quite annoyed by our presence, and might have eaten the beetles had they not been frightened." The account of the natural enemies includes also a list of 13 species of birds which the Biological Survey has found to feed upon adult *Eleodes*.

In his account of 'Two destructive Texas ants,'[1] Mr. W. D. Hunter inserts a list of the known bird enemies of the agricultural ant (*Pogonomyrmex barbatus molefaciens*). This list also is taken from Biological Survey records (with the exception of one name), and includes 8 species of birds.

The 'Preliminary report on the alfalfa weevil,'[2] gives a list of the vertebrate enemies of this new, but important pest, based on the work of Mr. E. R. Kalmbach of the Biological Survey. This represents the results of one season's field work on the relations of birds to this weevil. Thirty-one species are mentioned. A noteworthy point brought out by this investigation is that English Sparrows are among the most effective enemies of the pest, practically rearing their young on a weevil diet. Mr. Kalmbach writes that this season these birds are fully equalling last year's performance.— W. L. M.

The Food of Birds in Scotland.— Miss Laura Florence publishes in the Transactions of the Highland gricultural Society[3] detailed results of the examinations of the alimentary tracts of 616 birds representing 74 species. Since the contents of the intestines as well as of the stomachs were studied, the author is able to present data on the imperfection of digestion in some cases and to indicate possibilities in the distribution of seeds and insect eggs. No general conclusions are drawn, and the results for each species are only very briefly summarized. The detailed information is worthy of record, however, and will no doubt be very welcome to all Britons interested in economic ornithology.

The identity of several of the birds with United States species and the recurrence of many familiar seed and insect names, make an American feel much at home while reading the paper.— W. L. M.

Scott and Sharpe on the Birds of Patagonia.— The third installment of the report on the birds of the Princeton University Expedition to Patagonia[4] is presented with the same wealth of illustrations and breadth

[1] Circular 148, April 26, 1912.

[2] Bull. 112, May 14, 1912.

[3] Fifth Ser., Vol. XXIV, 1912, pp. 180–219.

[4] Reports of The Princeton University Expeditions to Patagonia, 1896–1899, J. B. Hatcher in charge. Edited by William B. Scott. Volume II — Ornithology, Part III, Charadriidæ–Anatidæ. By William Earl Dodge Scott associated with R. Bowdler Sharpe. Princeton, N. J. — Stuttgart. Pp. 345–504, text figs. 175–252, pl. 1.

of treatment found in the two preceding sections. The orders treated in their entirety are the Ardeiformes, Phœnicopteriformes and Anseriformes, while the first few pages are taken up with the last of the text on the Charadriiformes. The account of the habits of the Steamer Duck (*Tachyeres cinereus*), compiled from numerous sources, and the plate of three progressive stages of the downy young of the same peculiar species are of particular interest.

Owing to the death of both of the authors of the third and preceding portions of this report the preparation of the remaining installments has been placed in the hands of Mr. Witmer Stone, who also read the proof-sheets of the present section, although as presented it is entirely the work of the deceased authors.— J. A. G. R.

Kuser's Birds of Somerset Hills.[1]— In this dainty little volume Mr. Kuser has presented the results of his studies of the birds of Somerset County, northern New Jersey. The species are arranged according to their haunts, and their habits and plumages briefly described, while there are colored illustrations from paintings by Mr. C. A. Reed. There are special chapters on The Increase and Decrease of Birds, My Best Day's Record — 64 species, Calendar of Bird Migration in Somerset Hills, Terms used to denote the Abundance or Rarity of Birds, List of Birds Observed in the Somerset Hills, and The Horrors of the Taking of Aigrettes. The book is tastefully gotten up and beautifully printed and the subject matter cannot fail to interest its readers in birds and their protection.— W. S.

Murphy on Birds of Prospect Park, Brooklyn.[2]— Mr. Murphy contributes a nominal list of 147 species of birds observed in Prospect Park, Brooklyn, by members of the 'Bird Lovers' Club of Brooklyn' during the past six years. Twelve of these have not been recorded from Central Park, New York, while eighteen species seen by observers in the latter locality have not been found in Prospect Park.

The list will be interesting to those engaged in observing birds in other public parks and reservations in or about our large cities.— W. S.

Bragg's Supplement to the Birds of South Carolina.[3]— This list is intended as supplementary to Mr. Arthur T. Wayne's 'Birds of South Carolina,' published by the Museum in 1910. It contains notes on ninety-six species, giving additional records, exceptional dates of occurrence and

[1] The Birds of Somerset Hills. By John Dryden Kuser. Published by the Author. 1912. 8vo., pp. 1–160, pll. 22 and a map.

[2] The Birds of Prospect Park, Brooklyn. By R. C. M(urphy). The Museum News, published by the Brooklyn Institute of Arts and Sciences, Vol. 7, No. 8, May, 1912.

[3] Birds of South Carolina. Supplement. By L. M. Bragg. Bull. Charleston Museum, Vol. 8, Nos. 2–3, Feb. and March, 1912.

other supplementary data. Notes published elsewhere are included with proper references in order to make the supplement as complete as possible.— W. S.

Todd on New Neotropical Birds.[1]— In the course of identifying the South American birds recently acquired by the Carnegie Museum, which by the way amount to some six thousand skins, Mr. Todd has found a number which are apparently undescribed.

Mr. Carriker's Venezuela collection yields the following, *Arremonops tocuyensis, Saltator orenocensis rufescens, Schistochlamys atra aterrima, Compsothlypis pitiayumi elegans, Pheugopedius macrurus annectens, Troglodytes solitarius, Craspedoprion intermedius, Myiobius modestus, Myiochanes ardosiacus polioptilus, Myiodynastes chrysocephalus cinerascens, Machetornis rixosa flavigularis* and *Euchlornis aureipectus festiva*. From Trinidad is described *Tangara guttata trinitatis*, from the Santa Marta district, Colombia, *Sporophila haplochroma* and *Penelope colombiana*. There are also described *Tangara guttata eusticta* from Costa Rica and *Piaya rutila panamensis* from Panama, the type of the latter being in the Museum of Comparative Zoölogy. Mr. Todd promises full accounts of the Carriker Venezuelan Collection and a collection made in Bolivia by José Steinbach; at an early date.— W. S.

Coward's 'The Migration of Birds.'[2]— This little book is intended as a popular treatise on the subject of bird migration and being obviously a compilation one does not look for anything original in its pages. It will undoubtedly give the novice much information on this interesting subject, but it is to be regretted that a little more discrimination was not shown in the weight given to the different sources of information, and that the author could not have shown more personal knowledge of his subject in his handling of it.

Gätke comes in for continual criticism, while statements of more favored authors are quoted as facts, whereas they had, in some cases, much better be regarded as theories still subject to confirmation. The speed of certain species of migrating birds in North America quoted from Prof. Cooke's papers is a case in point. No doubt his theory of the advance of the Robin may prove correct, but in view of the variability of records of arrival of various species at nearby localities, it will require much more data before we can be positive of its speed in the interior of British America.

Mr. Coward gives a bibliography at the close of his volume which is by

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[1] Descriptions of Seventeen new Neotropical Birds. By W. E. Clyde Todd. Ann. Carnegie Mus., VIII, No. 2, 1912, p. 198–214.

[2] The | Migration | of Birds. | By | T. A. Coward | Cambridge: | at the University Press | New York: | G. P. Putnam's Sons | 1912. (The Cambridge Manuals of Science and Literature.) Small 8vo, pp. i–ix + 1–137, with 4 maps. Price, 40 cents.

no means complete. Curiously enough Dr. Watson's important experiments with the Noddy and Sooty Terns on the Tortugas seem to be known to him only through a casual mention by Dr. Allen.— W. S.

'Oologia Neerlandica.'[1] — Parts 2 and 3 of this excellent work are at hand and are fully up to the high standard set by Part 1. The eggs of the Thrushes, Warblers, Finches, Pipits, Hawks, and Owls, are figured in these numbers, which comprise in all sixty-five plates of from three to six figures each.

The text as in the previous part considers in detail the structure of the egg shell, often with results of no little interest. Among the Owls for instance, investigations along this line place *Athene* and *Syrnium* together, and also show close affinity between the two species of *Asio* while the Barn Owl stands off by itself. In the text relating to the Cuckoo no less than twenty-seven species of birds are listed in whose nests, in the Netherlands, Cuckoos' eggs have been found. Mr. Van Pelt Lechner is to be congratulated upon producing a work which will exert an influence far beyond the limited area of which it especially treats, and one which cannot help to increase interest in, and place on a higher plane, the study of birds' eggs.— W. S.

Morse's 'A Pocket List of Birds of Eastern Massachusetts.'[2] — This little work is intended as a handy pocket reminder to the local bird student of 'what, when, and where' to seek, and it seems to admirably meet the requirements of such a publication. Under each species are given its common and technical name, a brief statement of its relative abundance, character of occurrence, and the actual dates of occurrence in eastern Massachusetts, the kind of places usually inhabited by it, and in species of limited distribution, the counties or towns in which it is known to occur. Seasonal charts give a graphic idea of the time of occurrence of all the species, and a short introduction furnishes such explanations as are required. There is also an index to common names and a photogravure frontispiece of Egg Rock and the Nahant Shore.— W. S.

The Ornithological Journals.

Bird Lore. Vol. XIV, No. 2. March–April, 1912.
The Duck Hawk on the Palisades. By W. C. Clarke.
The Barred Owl at Rhinebeck, N. Y. By M. S. Crosby.
A Bluebird Study. By L. Claude.

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[1] Oologia Neerlandica | Eggs | of | Birds | breeding in the Netherlands | By | A. A. Van Pelt Lechner, | The Hague | Martinus Nijhoff | 1911.

[2] A Pocket List | of the | Birds of Eastern Massachusetts | with especial reference to | Essex County | by | Albert P. Morse | Curator of Natural History, Peabody Museum. Salem [etc., etc.]. — Published by the Peabody Academy of Science | Salem, Mass. | 1912. | pp. 1–92 + 6 charts.

The Migration and Plumages of North American Sparrows. (Continued.)

The Hairy and Downy Woodpeckers. Educational Leaflet, No. 55. By Alice H. Walter.

Bird Lore. Vol. XIV, No. 3. May–June, 1912.

The Golden-winged Warbler at Rhinebeck, N. Y. By M. S. Crosby.

One Little Hummer and I. By W. H. Palmer.

Notes on Cliff Swallows. By K. P. and E. W. Victor.

Making an Acquaintance: The White-eyed Vireo. By A. C. Redfie d. Ezekiel — By M. J. Selby.— A captive Rose-breasted Grosbeak.

The Migration and Plumage of North American Sparrows,— Black-headed and Rose-breasted Grosbeaks.

The Ruby-throated Hummingbird. Educational Leaflet, No. 56. By Mabel Osgood Wright.

The Condor. Vol. XIV, No. 2. March–April, 1912.

A Week Afield in Southern Arizona. By F. C. Willard.

Passerella stephensi in Marin County, California. By Joseph Maillard.

Nesting of the Canada Goose at Lake Tahoe. By M. S. Ray.

The Condor. Vol. XIV, No. 3. May–June, 1912.

Some North Central Colorado Bird Notes. By E. R. Warren.— Notes on 105 species observed during a 700-mile wagon trip.

An Afternoon's Field Notes. By J. Grinnell.— Contains observations on intervals between the calls or songs of various species.

The Wilson Bulletin. No. 78. March, 1912.

A Preliminary List of the Summer Birds of Fall River County, southwestern S. Dakota. By S. S. Visher — In a more or less critical region like this where one approaches the line of intergradation between geographic races, the greatest care should be exercised in identification, yet subspecies are here identified positively without any allusion to specimens or characters, some of them, such as *Dryobates pubescens nelsoni*, far out of their known range. Such carelessness reflects upon the accuracy of the entire list.

A Study of the Avifauna of the Lake Erie Islands. By Lynds Jones — Relates especially to migration phenomena.

Moments with Le Conte's Sparrows. By Althea R. Sherman.

Observations of Bird Life in Northern New Jersey during the winter of 1910–1911. By Louis S. Kohler.

Alleged Breeding Occurrences of the LeConte Sparrow in Illinois. By P. B. Peabody.

A Michigan Record for the Gannet. By N. A. Wood.

Status of the European Starling in Essex Co., N. J. By Louis S. Kohler.

The Ibis. IX Series. Vol. VI, No. 22. April, 1912.

On a Collection of Birds made by Mr. Willoughby P. Lowe on the West Coast of Africa and outlying Islands; with Field Notes by the Collector. By David H. Bannerman.— Sixteen species were added to the fauna of Liberia. There is a most interesting account of the protected colony of Gannets (*Sula capensis*), Cormorants and Penguins on Ichabo Island.

Observations on the Striated Field Wren (*Calamanthus fuliginosus*). By H. Stuart Dove.

Notes on some South American Birds. By Claude H. B. Grant. Supplementary to a paper in 'The Ibis' for 1911, contains information on the habits of neotropical *Molothri*.

Notes on the *Ruticilla nigra* of Giglioli. By T. Salvadori — Proves to be *R. tithys* blackened accidentally by soot while confined alive.

On a Journey to the Fiji Islands, with Notes on the present status of their Avifauna, made during a year's stay in the Group, 1910–1911. By P. H. Bahr — together with a Description of a small collection of skins from the same locality. By C. B. Ticehurst.— *Calliptilus solitarius* figured.

Notes on the Ornithology of Corsica, Part IV (concluded). By the Rev. Francis C. R. Jourdain.

Notes on *Laniarius mufumbiri*. By W. R. Ogilvie-Grant (figured).

Remarks on the Syrinx of the Scolopacidæ. By W. P. Pycraft.

Bulletin of the British Ornithologists' Club. CLXXVI. February 28, 1912.

Mr. Ogilvie Grant discusses the Crows of Australia and decides that their proper nomenclature is as follows: *Corvus coronoides* Vig. & Horsf., the Raven; *Corvus cecilæ* Mathews, the Crow; and *Corvus bennetti* North, the Jackdaw.

Mr. W. P. Pycraft describes the structure of the Syrinx in the Jack snipe, and explains the presence of an intercalary bar of cartilage. Dr. P. H. Bahr considers that each group of snipe has some special modification for the production of sound, in some species the stiffened spine-like rectrices, in others the emarginated remiges, while the peculiar syrinx in the Jack snipe is for the same purpose.

The following new birds are described: *Diomedia culminata mathewsi* Roths., Campbell Isl., N. Z.; *Cryptospiza borealis* Percival, Mt. Urguess, n. of Guasso Nyero; *Cœreba pacifica* P. R. Lowe, coast of Peru; and *C. chloropyga alleni* P. R. Lowe, Matto Grosso, Brazil.

Bulletin of the British Ornithologists' Club. CLXXVIII. April 26, 1912. Contains a general discussion on 'erythrism' in birds' eggs and some observations on the birds of the Fanning Islands.

British Birds. Vol. V, No. 11. April 1, 1912.

The Dipper at the Nest. By Arthur Brook.— With photographs.

Some Results obtained by ringing Starlings. By N. H. Joy.— 1696 birds trapped and ringed in less than two years.

Manx Ornithological Notes. By F. S. Graves and P. G. Ralfe.

Under the head of 'Notes' are numerous records of the recovery of marked birds and of the unusual occurrence of Little Auks during January and February, 1912 (continued in the next number).

British Birds. Vol. V, No. 12. May 1, 1912.

On Incubation. By Eric B. Dunlop.— Discusses the large number of species which begin to incubate when the first egg is laid,'Ovitegæ' the

author terms them, as opposed to the 'Ovinudæ' which do not sit until the full clutch is laid.

The Avicultural Magazine. Vol. III, No. 5. March, 1912.

Habits of the Wedge-tailed Green Pigeon (*Sphenocercus sphenurus*). By P. T. L. Dodsworth — (continued in next number). Scarcely ever descends to the ground or drinks.

The Avicultural Magazine. Vol. III, No. 6. April, 1912.

The Display of the Satyra Tragopan Pheasant (*Ceriornis satyra*). By C. B. Smith.

Diary of Birds seen on the White Nile. By R. Staples-Browne (continued in May number).

Photograph of Peacock Pheasant in display.

How to Breed Birds. By J. L. Bonhote.

The Avicultural Magazine. Vol. III, No. 7. May, 1912.

Hunstein's Bird of Paradise. By E. J. Brook.— Colored plate of *Diphyllodes hunsteini* and account of it in captivity.

Aviary Notes. By W. A. Harding — Rearing of hybrid Lorikeets (*Trichoglossus*). Notes of the Bellbird (*Chasmorhynchus nudicollis*).

Bird Notes. Vol. III, Nos. 1–4. January–April, 1912.

Beside the numerous notes and articles on cage birds and breeding, E. Hopkinson has a serial paper on 'The Birds of Gambia' while under 'Bird Life through the Camera' are illustrated accounts of the Moorhen, Kestrel, and Stone Chat by H. Willford. There are colored figures of *Tanagrella cyanomelæna* and *Calliste vielloti* in No. I and *Chloropsis jerdoni* in No. 4.

The Emu. Vol. XI, Part 4. April, 1912.

Bush Birds of New Zealand (concluded). By J. C. McLean.

Field Notes on the White-browed Field Wren (*Calamanthus albiloris*). By L. G. Chandler.

Further Notes from Stirling Ranges, W. Australia. By F. L. Whitlock.

Annotations by A. J. Campbell.— *Eopsaltria hilli* = *Pachycephala melanura*, female. *Pseudogerygone jacksoni* n. sp.

Descriptions of two nests and eggs. By H. L. White.— *Megalurus striatus* and *Pseudogerygone jacksoni*.

Notes on the Native Hen (*Tribonyx mortieri*). By Miss J. A. Fletcher.

Additional Notes on the Helmeted Honey-eater (*Ptilotis cassidix*). By F. E. Wilson.

Shaw's Zoology of New Holland, 1794. By Gregory M. Mathews.

A French Exporer's Australian Bird List. By Ernest Scott.— Translation of a letter form Capt. Baudin of the French Expedition of 1800.

Fac-simile of Membership Certificate of The Gould League of Bird Lovers of New South Wales.

Ardea. Journal of the Netherlands Ornithological Society. Vol. 1, part 1. April, 1912

Contains local notes and papers and a report on bird-banding, also an article by J. L. F. De Meyere. "Do Magpies make 'Sham-nests?'"

Aquila. Tom. XVIII. Budapest, 1911.

Bird Migration in Hungary for spring of 1910. Compiled by Koloman Lambrecht.— An extended record forming the 17th annual report of the Royal Hungarian Central Bureau for Ornithology.

Something about Bird Song. By Michael Matunsh — Contains numerous reproductions in musical notation of the song of *Parus major*.

Stomach and Pellet Investigations of the Native Owls (of Hungary) By Dr. E. Greschik — A valuable economic paper.

Several other papers deal with Economic Ornithology and Bird Banding.

Ornithologische Monatsberichte. Vol. XX, No. 1. January, 1912.

Separation of the Genera *Harpyhaliætus* and *Urubitornis*. By Dr. K. Kothe.

Two new Thrushes. By Harald Baron Loudon.— *Turdus pilaris sarudnyi, T. viscivorus sarudnyi* from Transcaspia.

A New Marsh-tit. By W. Hachlor.— *Pœcile baicalensis suschkini* Tarbagatai mountain.

Ornithologische Monatsberichte. Vol. XX, No. 2. February, 1912.

Descriptions of New Birds from the Territory of the Lower Amazon. By Hans Graf von Berlepsch.— *Conopophaga, snethlageæ, Vireolanius leucotis simplex, Knipolegus orenocensis xinguensis, Platyrhynchus griseia ceps amazonicus, Hypocnemis naevia ochracea*.

On the Bathing of Birds. By Dr. O. Heinroth.

New Crested Larks. By Paul Kollibay — *Ptilocorys cristata ioniul P. cr. subtaurica, P. cr. weigoldi*.

New African Birds. By Reichenow.— *Mesopicus schultzei, Barbaterchrysocoma schubotzi, Apalis rufogularis kamerunensis, Camaroptera supæciliaris kamerunensis*.

The Crested Lark of the Balearis Islands. By E. Hartert. *Galerida thecklæ polatzeki* subsp. nov.

Ornithologische Monatsberichte. Vol. XX, No. 3. March, 1912.

Two new Palæarctic forms. By H. B. London.— *Iynx torquilla sarudnyi* and *Chrysomitris spinus buturlini*.

Three new Abyssinian Birds. By D. J. v. Madarasz — *Poliospiza dimidiata, Fringillaria kovacsi* and *Columba sodalicia*.

Two new species from Fernando Po. By Reichenow — *Alseonax poensis* and *Ploceus melanolæma*.

Ornithologische Monatsberichte. Vol. XX, No. 4. April, 1912.

On the Nesting Habits of *Poicephalus meyeri matschiei*. By Ludwig Schuster.

Remarks on the Paradise Flycatcher of Ceylon. By N. Sarudny and M. Härms — *Tchitrea paradisi ceylonensis* subsp. nov.

A New African Heron. By A. Reichenow — *Tigribaphe leucoæma*, n. gen. et. n. sp. Ukerewe Island. Victoria Nyanza.

A contribution to the Geographic Distribution of the two Pacific species of Numenius. By J. Henninger — *N. variegatus* and *N. tahitiensis Dryobates medius transcaucasicus* nom. nov. for *Dendrocoptes medius colchicus*.

Ornithologische Monatsberichte. Vol. XX, No. 5. May, 1912.

Contribution to the Classification of Some African Bird Groups. By O. Graf Zedlitz.— *Serinus angolensis hilgerti, Uræginthus cyanocephalus mülleri, Calamonastes simplex erlangeri,* and *C. s. hilgerti* subsp. nov.

Dendrocopos analis longipennis subsp. nov. By Erick Hesse.

Parus cinereus ferghanensis subsp. nov. By S. A. Buturlin.

Ornithologische Monatschrift. Vol. 37, Nos. 1–5.

No. 1 contains several articles illustrated by photographs of birds breeding on the shores and islands of the North Sea and a paper ' How can we make an exact study of the problem of Bird Migration.' By Dr. Hugo Weigold of Heligoland, illustrated by charts.

No. 2, besides the usual local articles etc., contains excellent photographs of the Kinglet and Kingfisher reproduced in colors.

Journal für Ornithologie. Vol. 60, No. 2. April, 1912.

Tenth annual Report of Bird Migration Observations of the German Ornithological Society (1910). By Dr. J. Thienemann.— Comprises over 100 pages of text and several charts.

Ornithology of N. W. Mesopotamia and Interior Syria. By Dr. H. Weigold.

New Species from the Uelle region Middle Africa. By A. Reichenow. *Guttera plumifera schubotzi, Francolinus lathami schubotzi, Vinago calva uellensis, Ploceus anochlorus, Cinnyris chloropygius uellensis, Alethe uellensis, Alethe polioparea.*

Ornithologisches Jahrbuch. Vol. XXIII, Nos. 1–2. January–April, 1912.

Houbara macqueeni Gray. By J. Aharoni.— An extended account of this Bustard.

Critical Review of " The Birds of the Croatian Fauna." By Dr. M. Hirtz.— Contains many important corrections.

Several other local papers.

Verhandlungen der Ornithologischen Gesellschaft in Bayern. Vol. XI, No. 1. January, 1912.

Dr. Karl Parrot. By L. von Besserer.

Seventh Annual Report of Bird Observation in Bavaria, 1909 and 1910. By Dr. J. Gengler.

Description of a New Dendrocolaptid from Venezuela. By C. E. Hellmayr and Joseph Graf von Seilern — *Automolus klagesi.*

On New and Rare Birds from South Peru. By C. E. Hellmayr — *Automolus watkinsi, Thamnophilus marcapatæ* spp. nov.

Two New Palæarctic Forms. By A. Laubmann.— *Garrulus glandarius corsicanus* and *Accipiter nisus teneriffæ* subspp. nov.

Messager Ornithologique. 1912, No. 1. [In Russian].

Notes on the Ornithology of Turkestan (continued). By N. A. Sarudny. — *Chroicocephalus ridibundus lavrovi* subsp. nov.

Breeding grounds of *Eurynorhynchus pygmæus.* By S. A. Buturlin.

Messager Ornithologique. 1912, No. 2. [In Russian].

Besides several papers on Russian and Transcaucasian birds there are the following:

On the Ornithology of Turkestan. By N. A. Sarudny — *Urinator arcticus suschkini* and *Cerchneis naumanni turkestanicus* subspp. nov.

Parus bokharensis and its races. By N. A. Sarudny and S. I. Bilkewitsch — *P. b. iliensis* and *P. b. dzungaricus* subspp. nov.

A new Creeper. By W. B. Banikowski — *Certhia familiaris buturlini*

Ornithological Articles in Other Journals.

Hilgert, C. *Laniarius funebris degener* subsp. nov. Described from South Somaliland. *L. f. atrocæruleus* subsp. nov. from Abyssinia appears in the same paper. (Novitates Zoologicæ, XVIII, No. 3, pp. 605–606.)

Hartert, E. Notes on Paradisæidæ. *Falcinellus astrapioides* and *Astrapia rothschildi* with two plates. (Novitates Zoologicæ, XVIII, No. 3, p. 604.)

Salvidori, T. Note on *Conurus æruginosus* and allied species. (Novitates Zoologicæ, XIX, pp. 84–85.)

Rothschild, W. and Hartert, E. Ornithological Explorations in Algeria. (Novitates Zoologicæ, XVIII, pp. 456–550, with fifteen plates illustrating the character of the country) — Comprises an interesting introduction and annotated list of 230 species, *Colœus monedula cirtensis*, and *Galerida thecklæ hilgerti* subspp. nov.

Mathews, Gregory M. Reference-List to the Birds of Australia. (Novitates Zoologicæ, XVIII, pp. 171–455.)— This is essentially a new edition of the author's 'Handlist of the Birds of Australia' published in 1908 and is made necessary by the fact that the Handlist did not conform in its nomenclature with the International Code. The number of species or subspecies listed is 1151, of which the enormous number of 537 are here described as new! Several new genera also appear.

Van Oort, E. D. On *Æstrelata aterrima* (Bonap.). (Notes from the Leyden Mus., XXXIV, No. II, p. 70.)

Schonteden, H. Le Balæniceps roi. (Rev. Zoologique Africaine I., fasc. 3, pp. 347–352, fig. 1, ppl. XIX–XX.)

Maguan, A. Morphologie stomacale en fonction du regime alimentaire chez les Oiseaux. (Ann. Sci. Nat., Zool., XV, pp. 1–42.)

Publications Received.— Bowles, J. H. and Howell, A. B. The Shore Birds of Santa Barbara. (The Condor, XIV, 1912, pp. 4–11.)

Bryant, H. C. The Relation of Birds to an Insect Outbreak in Northern California during the Spring and Summer of 1911 (The Condor, XIII, 1911, pp. 195-208).

Chapman, Frank M. Handbook of Birds of Eastern North America. Revised Edition. New York and London, D. Appleton and Co., 1912. Library Edition $3.50. Pocket Edition $4.00.

Clarke, William Eagle. Studies in Bird Migration. 2 vols. London. Gurney and Jackson, 1912. 18s. net.

Clark, Austin H. The Ontogeny of a Genus. (Amer. Nat., XLV, 1911, pp. 372–374).

Coward, T. A. The Migration of Birds. (Cambridge Manuals of Science and Literature.) Cambridge: Univ. Press. New York: G. P. Putnam's Sons, 1912.

Dearborn, Ned. The English Sparrow as a Pest. Farmers' Bull. 493, U. S. Dept. Agr., Washington, 1912.

Dill, Homer R. and Bryan, Wm. Alanson. Report of an Expedition to Laysan Island in 1911. Bull. 42. Biol. Survey U. S. Dept. Agr. Washington, 1912.

Hartert, E., Jourdain, F. C. R., Ticehurst, N. F. and Witherby, H. F.—A Hand-List of British Birds. London, Witherby & Co., 1912.

Headley, F. W. The Flight of Birds. Witherby & Co., London, 1912. 5s. net.

Horsbrugh, Major Boyd. The Game-Birds and Water-Fowl of South Africa, with coloured plates by Sergeant C. G. Davies. Part I. London, Witherby & Co., March, 1912.

Howard, H. Eliot. The British Warblers. A History with Problems of their Lives. Illustrated by Henrik Grönvold. Part 6. London, R. H. Porter, December, 1911. 21s. net.

Kuser, John Dryden. The Birds of Somerset Hills. Published by the Author, 1912.

Lynes, Commander H. Field-Notes on a Collection of Birds from the Mediterranean. With Systematic Notes by H. F. Witherby. (The Ibis 1912, pp. 121–187.)

McAtee, W. L. Bird Enemies of the Codling Moth. (Yearbook U. S. Dept. Agr., 1911, pp. 235–246.)

McAtee, W. L. and Beal, F. E. L. Some Common Game, Aquatic and Rapaceous Birds in Relation to Man. Farmers' Bull. 497. U. S. Dept. Agr., Washington, 1912.

Mathews, Gregory M. The Birds of Australia. Vol. I, Pt. 6, Vol. II, Pt. 1.

Henshaw, H. W. Our Mid-Pacific Bird Reservation. (Yearbook U. S. Dept. Agr. 1911, pp. 153–164.)

Morse, Albert P. Pocket List of Birds of Eastern Massachusetts. Published by the Peabody Acad. of Sci., Salem, Mass., 1912.

Murphy, R. C. The Birds of Prospect Park, Brooklyn. (The Museum News, Brooklyn, N. Y., May, 1912, pp. 113–119.)

Oberholser, H. C. A Revision of the Forms of the Edible-Nest Swiftlet, *Collocalia fuciphaga* (Thunberg). (Proc. U. S. Nat. Mus. 42, pp. 11–20, 1912.)

Shufeldt, R. W. American Ducks and How to .Dstinguish Them. Pts. II–IV. (Outer's Book. April–June, 1912.)

Todd, W. E. Clyde. Descriptions of Seventeen New Neotropical Birds. (Ann. Carnegie Mus., Pittsburgh, VIII, pp. 198–214, May 20, 1912.)

Lechner, A. A. Van Pelt. Oologia Neerlandica. Eggs of Birds Breeding in the Netherlands. The Hague, Martinus Nijhoff. Parts 2 and 3. £1. 10 s. net. each. 1911 and 1912.

Wright, Horace W. Birds of the Jefferson Region in the White Mountains, New Hampshire. (Proc. Manchester Inst. Arts and Sci., V., Pt. 1, 1911.)

Abstract Proc. Zool. Soc. London, Nos. 105–106, 108–110.

Animals' Friend, XVIII, Nos. 6 and 8, March and May, 1912.

Ardea I, No. 1, April, 1912.

Austral Avian Record, I, No. 2, April 2, 1912.

Avicultural Magazine (3) III, Nos. 6–7, April–May, 1912.

Bird-Lore, XIV, Nos. 2–3, Mar.–April, May–June, 1912.

British Birds, V, Nos. 11–12, April–May, 1912.

Bulletin British Ornith. Club, No. CLXXVII, March 26, 1912.

Bulletin Charleston Museum VIII, Nos. 4–5, April–May, 1912.

Condor, The, XIV, Nos. 2–3, March–April, May–June, 1912.

Emu, The, XI, Part 4, April, 1912.

Forest and Stream, LXXVIII, Nos. 13–25, 1912.

Glasgow Naturalist, The, I, II, III, and IV, Nos. 1–2. Nov., 1908–Feb., 1912.

Ibis, The, (9) VI, No. 22, April, 1912.

Messager Ornithologique, No. 2, 1912.

Oologist, The, XXIX, Nos. 4–5, April–May, 1912.

Ornithologisches Jahrbuch, XXIII, Nos. 1–2, Jan.–April, 1912.

Ornithologische Monatsschrift, 37, Nos. 4–5, April–May, 1912.

Ottawa Naturalist, The, XXV, No. 12, XXVI, Nos. 1–2, March–May, 1912.

Philippine Journal of Science, The, VI, No. 6, Dec., 1911.

Philippine Bureau of Science, Tenth Annual Report, 1912.

Proceedings Acad. Nat. Sci. Philadelphia, LXIV, Pt. 1, 1912.

Proceedings and Transactions Nova Scotia Inst. Science, XII, Pt. 3, March 18, 1912.

Science, N. S., XXXV, Nos. 900–912, 1912.

Rod and Gun in Canada, XIII, No. 8, Jan., 1912.

Zoologist, The, (4) XIV, Nos. 183–185, March–May, 1912.

CORRESPONDENCE.

Sclater's Contour Map of Colorado.

EDITOR OF 'THE AUK':

Dear Sir: — In commenting upon Sclater's excellent book on the Birds of Colorado in the April number of 'The Auk,' I neglected to mention his map. It is very unfortunate that he republished this map, which is evidently taken from Rydberg's Flora of Colorado, because it is exceedingly incorrect as to contour lines. In a state like Colorado, presenting differences in altitude of a mile and a half, the altitudes of various localities are of great importance to naturalists. Altitude is an essential element in the study of the distribution of plants and animals in Colorado and of the migrations of birds. In the map in question, to take a few out of many examples, the contour lines give Boulder an altitude of about 2 000 feet too much, Golden 2,500 feet too much, Denver 1,000 feet, Trinidad 1,000 feet, Meeker is placed considerably too low, etc. Fortunately a gazeteer in each of the books mentioned will in part correct the faults of the map for those who notice and use it instead of the map. The altitudes of most of the towns of the state may also of course be obtained from the Dictionary of Altitudes published by the United States Geological Survey, or the Gazetteer of Colorado (Bulletin 291 of the same survey). These publications also give the altitudes of many other points aside from the towns. Nearly all western railway folders also give the altitudes of stations along their routes. The Colorado Geological Survey has almost ready for the printer a new topographic map of the state, based upon data from the most reliable sources, which will place the contour lines in as nearly their correct positions as can be done at present, and in those portions of the state where detailed field work has been done the lines will be very accurate. Consequently no naturalist need have any difficulty in most cases in obtaining altitudes, providing he is warned against using the map in Sclater's book and in the Flora of Colorado.

JUNIUS HENDERSON.

A Correction.

EDITOR OF 'THE AUK': —

Dear Sir: — I find that the Index to the 'Bulletin of the Nuttall Ornithological Club' and 'The Auk', for the period 1876–1900 (New York, 1907), includes on page 72 the titles of all the contributions of the late Captain John Clifford Brown, U. S. V.[1] under another's name, though on page 235 "Brown, J. C." is given credit for four of them which relate to

[1] See Auk' XVIII, pp. 220–221.

Maine and on page 45 for one which relates to the Atlantic Ocean. Corrections as to authorship should therefore be made in the case of the following titles appearing on page 72 of the Index:

Carpodacus purpureus at Portland, Maine, in winter.
Early appearance of *Empidonax minimus* at Portland, Maine.
Unusual nesting site of *Dendroica virens*.
Winter notes from Portland, Maine.
American Crossbill at sea.

These were published by Captain Brown.

Yours very truly,

N. C. B.

Concealing Coloration.

EDITOR OF 'THE AUK':—

Dear Sir: — The naturalists answer about this or that creature, whose wonderful background matching I show, that he has no use for concealment. Here they are in their own field though venturing far beyond scientific knowledge; but this does not in the slightest degree affect the all the more interesting fact of his astoundingly perfect background painting. And because *in all these cases*, these creatures (supposed to need no concealment) nevertheless have it *from the very situation from which some animals see them*. I do not believe that so wonderful an equipment is for nothing, and I doubt the naturalists' assertion that it does not help the wearer.

Most naturalists also deride the idea that so vast a variety of costume as that of the forest fauna could all be subject to one law of concealing coloration.

Concealing coloration is simply that which passes the wearer off for *any details* of the scene, and of these the forest contains of course a boundless variety. To test at the start the probability of such a general law, turn from the complexities of the forest to the simplicity of other realms, the sea, the sands, the snow — look at the inhabitants of all these more or less monochrome parts of the world, and you will find that everywhere the nearer to one single color note is the scene the nearer to a corresponding single color note is the animal's costume.

Let them tell me why this so widespread resemblance of inhabitants to background should suddenly cease when one comes to the complex scenery of the woods, which offer a *hundred* models for counterfeiting where the sea, snow or desert offers one.

Therefore, since each different forest costume is a duplicate of some part of the scene, the catchword that if in the same woods any particular costume is a concealer the others are not, boils down to the same absurdity as saying that if one of the *things* they counterfeit is real, the others aren't — in other words, if the tree trunk is real, the leaves are not.

It is incredible that a conception born of no particle of fact should be so tenacious of life.

Here is an illustration of the truth.

There are three prominent types of flycatching beak. The gigantic mouth and so to speak *no* beak of the Goatsucker, the common sized, stout beak of *Tyrannus*, and the slim, long, bent-needle beak of a Jacamar. By the common logic, each of these birds should be told that it *does not catch insects*, since it is a physical impossibility that if a beak of one particular shape does so, one of a *different* shape can also do so. The fact that different costumes represent different details of forest scenery is no more remarkable than that different species have a different anatomy.

In the animal world, each different mode of getting a living gathers into a community members of widely differing genera and forms, but, in each of these communities every differently shaped species will be found to use his body proportionately differently in attaining the same end, and for one of these to attain, in those same woods, *inconspicuousness* by *passing for a different forest detail* from that counterfeited by his neighbor, is in no way more remarkable than for him to bring to this community his different anatomy, and the main point is that all these counterfeits do succeed.

ABBOTT H. THAYER.

Monadnock, N. H., June 1, 1912.

NOTES AND NEWS.

IN the present issue of 'The Auk' there is presented the sixteenth supplement to the A. O. U. Check-List of N. A. Birds, the first since the appearance of the new (third) edition of the Check-List. It is now nearly thirty years since the A. O. U. Committe on the Classification and Nomenclature of North American Birds was first appointed, and as a new generation of ornithologists has grown up in the meantime, a word as to the objects and province of this committee may not be out of place.

Everyone has an undisputed right to describe as many new species or races as he pleases and so fully has this privilege been exercised that new forms have been split off on finer and finer grades of differentiation as the years go by. Whether or not all these forms shall be included in the Check-List is one of the questions that the A. O. U. has left to its Committee. The Committee endeavors to obtain authentic material from the author of the new form and from elsewhere, and with the author's presentation of the case before it, decides by vote whether or not the alleged differences are sufficiently well marked to warrant recognition by name

The specialist working over a group of birds constantly for weeks at a time, unconsciously magnifies the differences which he finds between birds from areas, which he has reason to think, ought to yield separable geographic races. The Committee usually is able to recognize the differences that he points out, and the rejection of proposed races does not indicate that the author is wrong, but simply that in the opinion of the Committee the differences he has found are too slight and too inconstant to be of any practical utility. The Union believes that for practical purposes the judgment of seven men is better than that of one, and desires the opinion of a committee on all cases of proposed new forms, and the Check-List and its supplements constitute the Committee's opinions and nothing more.

In the same way questions of change of names are also passed upon, although in such cases the Committee is bound by the Code of Nomenclature in reaching its decisions.

In the latest supplement it will be noticed that only cases of proposed new species or subspecies are considered. Cases of nomenclature are left in abeyance for the present.

The object of this action is to maintain the stability of the names in this edition of the Check-List for as long a time as possible. When the List was issued every effort was made to sift all questions of nomenclature to the bottom, and while this was successful in the main, there are certain changes that will still have to be made. These are not numerous, and it seems that nothing is to be gained by hasty action in the matter, so for the present no changes will be made in the List on purely nomenclatural grounds.

This brings us to another matter that is exciting certain zoologists in various parts of the world at the present time, namely the advocacy of a list of *nomina conservanda* which shall be maintained regardless of the existence of earlier names for the same species or genera, because these names which have no status under the law of priority have in past years gained a more or less general acceptance. None of the advocates of this plan seem to have any definite idea of how it should be put in practice — at least we have seen none expressed, and they certainly have very different ideas as to just what they desire. '*Nomina conservanda*' seems to be a sort of convenient battle cry under which all who find some old and familiar name in danger of displacement, may rally. A certain number, at least, of those who are in favor of departing from the strict rule of priority, have apparently not looked into the matter sufficiently to discover that only a small portion of the changes in zoological names are really due to priority. As an illustration of the hasty assertions that are too often indulged in by such writers, we may quote from a letter of Mr. C. S. Brimley in the June number of 'Entomological News,' in answer to a call for an expression of opinion among American entomologists for or against the strict enforcement of the law of priority. He says "I am against the strict application of the rule of priority, because there seems to be no end to the changes arising under it. Take the birds of North America, some

700 species, if I remember rightly. The American Ornithologists' Union has had a committee working on them for over thirty years, and every supplement to the original Check-List has an increasingly large number of changes of names, owing to the application of this law."

Let us see how far Mr. Brimley's exposition of the A. O. U. Check-List as a horrible example is correct. In the first place the Committee as already explained, has only passed judgment on *proposed changes*, and has met for this purpose for a few days about every other year; so that the statement regarding the Committee's thirty years of action is rather misleading.

As to the changes in the Check-List. There were in the original edition. 948 named species and subspecies of which 550 remain unchanged in the last edition, while 374 have had either the generic, specific or subspecific name altered, or have undergone a change in rank from species to subspecies or *vice-versa*, and 24 have been dropped. In some cases one change affects several names, as for instance the substitution of *Hylocichla* for *Turdus* by which the names of ten thrushes are altered, but all these are counted in the above total.

Now of these 374 changes 54 are due to a wrong identification, or to the fact that the name formerly in use proved to be a 'nomen nudum.' As an illustration of the first class; Forster in 1772, described the Great Gray Owl as *Strix nebulosa*. Someone, unfamiliar with this bird, supposed that he referred to the Barred Owl, so *nebulosa* was consequently applied to the latter for over one hundred years, and has only recently been transferred to the species for which Forster intended it Such changes seem inevitable and have nothing to do with the law of priority. Again, 181 changes are due to the subdivision of genera and species, or to mere changes of rank. *Picus* for the small woodpeckers had become *Dryobates*, not by the law of priority but by the subdivision of the genus *Picus*, the latter name being restricted to an Old World group.

As a matter of fact only 99 cases — 70 actual changes — are due to the law of priority, so that it becomes very evident that the chief cause of instability in nomenclature is not 'antiquarian research,' but the extremely modern manufacture of genera and species by splitting up old material — one of the necessary accompaniments of systematic study. Mr. Brimley is therefore mistaken in charging up all the changes in the Check-List to the law of priority, as he is misleading in his statement as to the province of the Committee and the time of its labors.

Those who advocate 'nomina conservanda' will find that their panacea will not cure all the ills of nomenclature.

If they will only be content to let the International Commission proceed with its admirable work for uniformity in nomenclature and help to enforce the rules of the International Code in every case, we shall soon have stability so far as the law of priority is concerned. 'Nomina conservanda' and any other devices for special legislation only delay the attainment of this end. The amusing thing about the whole matter is that while any

proposition to do away with some time honored name, such as *Picus*, on grounds of priority would meet with a storm of opposition, we may by continued generic subdivision abolish it from the designation of every woodpecker in the world save one, without protest!

Prof. Alfredo Dugès, elected a Corresponding Member of the American Ornithologists' Union, died at his home in Mexico on January 7, 1910, in the eighty-fourth year of his age. From a biographical sketch by Manuel M. Villada in *La Naturaleza* we learn that he was born on April 10, 1826, in Montpellier, France, son of Dr. Antonio Luis Delsescantz Dugès. He received the degree of doctor of medicine at Paris in 1852 and soon after came to Mexico where the rest of his life was spent.

He was professor of Natural history in the State University of Guanajuato up to the time of his death and a constant contributor to *LaNaturaleza*, while he published articles also in *La Naturaliste*, 'The Auk' and other journals. Seventy-two titles are listed in the bibliography accompanying Sen. Villada's sketch, most of which treat of reptiles in which he took especial interest. Several species have been named in his honor, those among birds being *Basileuterus rufifrons dugesi* Ridgw. and *Dendroica dugesi* Coale.

We note in 'The Ibis' the announcement of the death of Mr. Eugene William Oates on November 16, 1911. Mr. Oates was born on December 31, 1845, and spent much of his life in Burmah in the Public Works Department of the Government of India. He was well known for his writings on Indian Birds including the 'Birds of British Burmah'; the bird volumes of Blanford's 'Fauna of British India'; 'Game Birds of India' etc. During his later residence in England he compiled a catalogue of the collection of birds' eggs in the British Museum and served as secretary of the British Ornithologists' Union 1898–1901, editing a subject index to 'The Ibis' 1859 to 1894.

Since our last notice[1] of the American Museum of Natural History's Colombian Expedition, its explorations have been continued with most valuable and interesting results.

From a recent publication of the American Museum of Natural History by Frank M. Chapman, containing a preliminary report on the 5000 birds thus far received from the expedition and describing some forty new Colombian birds, we learn that, in August, 1911, W. B. Richardson returned home and L. E. Miller was joined by Arthur A. Allen of Ithaca. Allen and Miller devoted September, October and part of November to work in the Quindio Region of the Central Andes, reaching the snow-line on Santa Isabel at an altitude of 15,600 feet, and securing many species new to Colombia as well as others new to science.

[1] 'The Auk', July, 1911, p. 391.

After a week on the Cauca River at Rio Frio, near Cartago, they crossed the Western Andes to Nóvita on the San Juan river and returned to their base at Cali via Buenaventura early in January. Here both men were attacked by fever acquired in the unhealthful Chocó region, and Mr. Chapman informs us that a start for the headwaters of the Magdalena was necessarily postponed until February. This region was finally reached in April after a trying journey over the Central Andes from Almaguer. Allen suffered so severely from the fever, contracted in the low coast country, that, in May, he was forced to return to the United States leaving Miller to continue the exploration of the zoölogically unknown upper Magdalena basin. Under date of May 6, 1912, Miller writes of the richness of this new field and reports that one of the chief desiderata of the expedition has been secured in his discovery of a nesting colony of the Cock-of-the-Rock. No less than seven nests of this species were found, some of which contained eggs, two being a full set while others held young in every stage from those newly hatched to others ready to fly. This material will enable the American Museum to construct an unusually attractive as well as unique group of a species concerning whose nesting habits we have hitherto known but little.

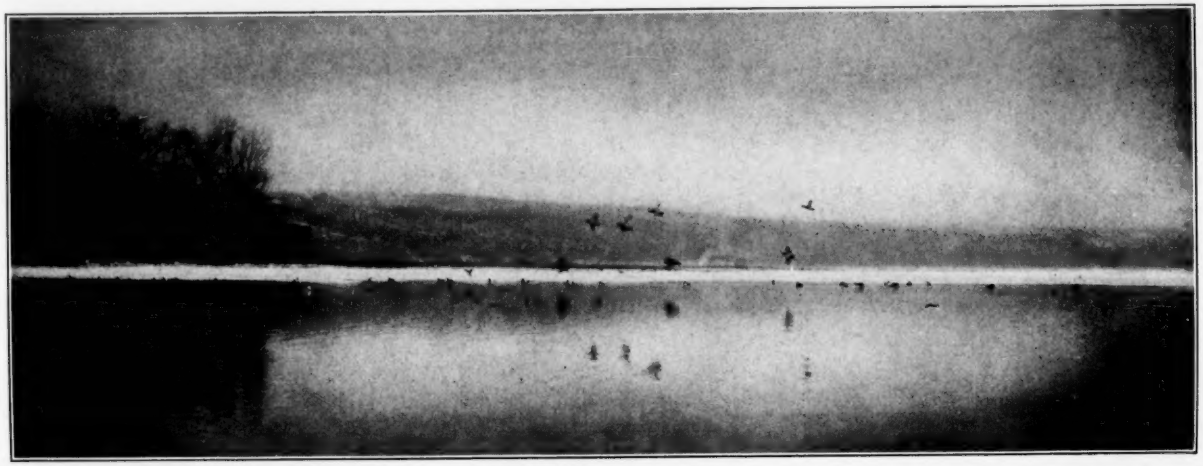
Mr. Martinus Nijhoff, The Hague, Holland, announces an English translation of Penard's 'Birds of Guyana' (Surinam, Cayenne and Demerara) to be issued in two volumes consisting of about 1160 pages and 700 illustrations. Large 8vo, cloth. The price for the first hundred subscribers will be two guineas net. As soon as this number is reached printing will be commenced and the price raised to £3. 3 net.

Ardea, Journal of the Netherlands Ornithological Society, is the title of a new Ornithological Journal published at The Hague and dealing with the birds of the Netherlands and their colonies. The first number is dated April, 1912. It is published in Dutch.

The Local Committee for the thirtieth stated meeting of the American Ornithologists' Union announces that the second week of November has been selected as the time of the meeting. The public sessions will therefore be held at Cambridge, Mass., on November 12, 13 and 14, 1912.

CANVAS-BACKS AND SCAUP DUCKS RISING FROM THE WATER.

1. THE FLOCK AT REST.



2. SCAUP DUCKS CIRCLING.